ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY

25th Anniversary

1983 - 2008

Letter from the Chairman & President

Dear Governor Beebe & Distinguished Legislators:

This year the Arkansas Science & Technology Authority celebrates twenty five years of service in bringing the benefits of science and advanced technology to the people and state of Arkansas. To mark our silver anniversary, the Board of Directors and staff are pleased to submit to you the Authority's 2008 Annual Report. This report summarizes the scientific and technological projects by which the Authority carries out its mission to bring the benefits of science and advanced technology to the people and state of Arkansas.

The Authority's goal is "to plan, promote, influence and support with high quality programs and services the commercialization of research innovations thereby helping to grow the Arkansas economy and increase per capita income."

The Authority's Board of Directors has established five primary goals as part of its biennial plan: (1) To increase research activities in Arkansas, (2) To improve STEM (Science, Technology, Engineering, and Mathematics) education at all levels, (3) To maintain and transform existing enterprises into knowledge-based companies and increase global competitiveness, (4) To develop new products and entrepreneurial firms, and (5) To increase the Authority's visibility through a comprehensive communications and public relations program.

Increasing Research Activities

In Fiscal Year 2008, the Arkansas Science & Technology Authority's efforts to increase research activities were successful. The Authority was awarded a 9 million dollar grant from the National Science Foundation to be disbursed over the next three years to three Arkansas campuses: Arkansas State University, the University of Arkansas – Fayetteville, and the University of Arkansas at Little Rock. The award will establish the state's first multi-university research project focusing on wireless nano-sensor technology and plant-based bioproduction. By the end of the fiscal year, the funds were already being utilized as Arkansas State University opened the EPSCoR Center for Plant-Based Productions.

Looking into the future, the Authority staff wrapped up the year by taking part in the NSF EPSCoR Strategy Planning Session.

Improving STEM Education

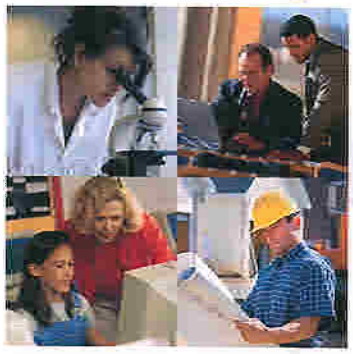
This year the Arkansas Science & Technology Authority made strides to improve STEM education by hosting one of the most successful events in its history. Over 400 leaders from around the state convened for *Rising Above the Gathering Storm: Energizing and Employing Arkansans for a Brighter Economic Future*. This unique event, inspired by a 2007 report published by the National Academies, was a day-long event to brainstorm on building and sustaining an Arkansas workforce that can meet the STEM (Science, Technology, Engineering and Mathematics) demands of business and industry in the next decade and beyond.

Additionally, with the assistance of the Winthrop Rockefeller Foundation, the Authority staff endeavored to strengthen STEM and the creation of a skilled workforce in Arkansas. Authority staff members served on 5 advisory panels in Fiscal Year 2008. The panels focused on STEM curriculum in schools, access to technology tools and funding for undergraduate STEM career pathways. Over 20,000 Arkansas students, over 500 teachers and 268 schools were directly impacted by Authority awards and supported programs. Awards totaling $494,105 went to support STEM educational initiatives that improve the quality of STEM instruction. Authority staff continued to work with groups collaborating to expand the resources available for promoting 21st Century workforce skills. This included preparing teachers at SMART Workshops, an EAST facilitator workshop on grant writing, taking part in the fall meeting of the Arkansas Educational Cooperatives, and involvement in student-based projects for EAST and the Frontier Trails BEST Robotics Competition.

Transforming Arkansas Enterprises into Knowledge Based Companies

The Authority's Arkansas Manufacturing Solutions (AMS) aided in the improvement of Arkansas' manufacturing and industrial competitiveness in Fiscal Year 2008. AMS worked with 281 Arkansas companies and completed 238 projects and events, which included newly offered workshops and a

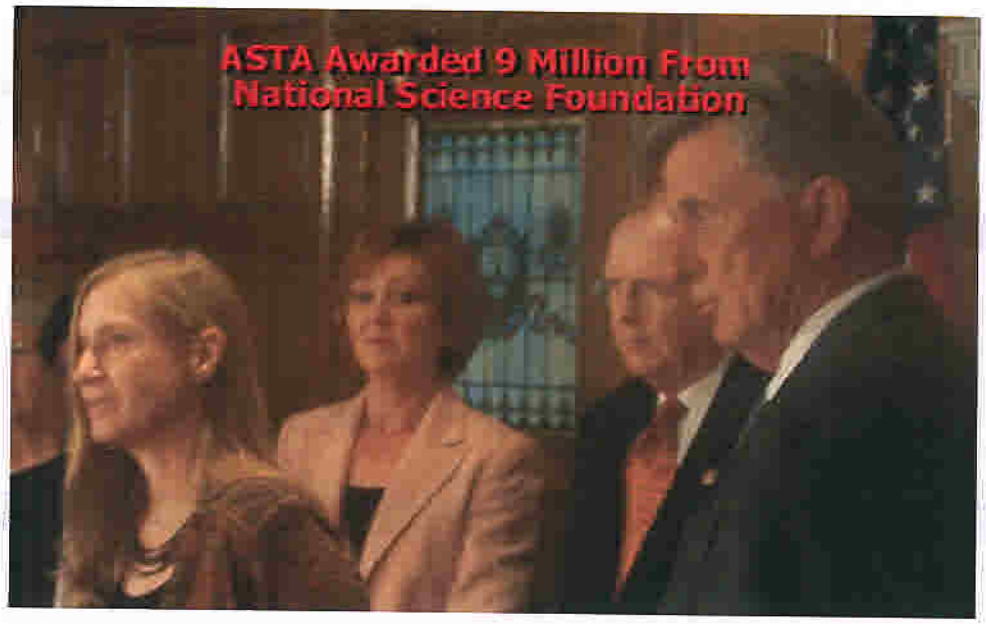
About the Authority



The Arkansas Science & Technology Authority (the Authority) was created by statute in 1983 with the mission to bring the benefits of science and advanced technology to the people and state of Arkansas. This mission is addressed by strategies to promote scientific research, technology development, business innovation, and math, science and engineering education.

The Authority is comprised of a Board of Directors, Advisory Committees and staff. The 14-member Board is appointed by the Governor to staggered four-year terms.

The Board has three directors who are scientists or engineers, two directors who are representatives of academic institutions, five directors who represent the private sector, three directors who represent the private sector and have knowledge and experience in the field of manufacturing, and the Director of the Department of Higher Education (or the Director's designee).



Profile for Success: The Authority Is Awarded a $9 Million Dollar Grant From NSF

In Fiscal Year 2008, the Arkansas Science & Technology Authority was awarded a $9 million grant from the National Science Foundation (NSF) to establish the Arkansas ASSET (Advancing and Supporting Science, Engineering and Technology) Initiative.

The award was made through NSF's Experimental Program to Stimulate Competitive Research, which is better known by its acronym, EPSCoR.

The ASSET initiative is designed to boost progress in two scientific research areas that are developing in Arkansas: plant-based bioproduction and wireless nano-bio-info-technology sensors. Both have potential for major economic development as well as regional and national commercial significance.

The ASSET Initiative will be used to further develop the state's research capabilities and support interdisciplinary activity that will enhance Arkansas' research competitiveness, create added research and training opportunities, attract top scholars, enable Arkansas to form new links with national and international programs, and create new economic opportunities for industry and entrepreneurship.

ASSET is categorized as "multi-institutional and interdisciplinary" because it involves several state institutions and scientists who work in several fields of study. The grant will be very beneficial because it will help train entrepreneurs in the targeted research areas and support the commercialization of new technologies.

Grant funding will be provided to three Arkansas universities: the University of Arkansas - Fayetteville, the University of Arkansas at Little Rock, and Arkansas State University. The goal is to emphasize high-tech and knowledge-based industries.

The grant focuses both on improving research infrastructure, or capability, while strengthening the potential for commercialization of the products that may be generated by research groups.

The grant supports two separate themes. The first is the development of a Plant Powered Production (P3) Center, a multi-institutional, cross-disciplinary center for research at the interface of agriculture, energy, environment, and health. The P3 Center will be housed on the campus of Arkansas State University.

The second research theme, the Wireless Nano- Bio- Info-Tech Sensor System and Center, housed on the campus of the University of Arkansas, will create a collaborative infrastructure for the design of arrays of nanosensors that can be integrated with wireless systems and fabricated with a specialized, yet low-cost, nanofabrication technology.

Success Story: Rising Above the Gathering Storm Targets the State's Economic Future

In September, representatives from business, industry, education and government met to take part in *Rising Above the Gathering Storm: Energizing and Employing Arkansans for a Brighter Economic Future*, a day long event that took place at the Statehouse Convention Center. The purpose of the meeting was to brainstorm on building and sustaining an Arkansas workforce that can meet the STEM (Science, Technology, Engineering and Mathematics) demands of business and industry in the next decade and beyond.

This unique event, hosted by the Arkansas STEM Coalition with the support of the Authority, was inspired by a 2007 report published by the National Academies. The day began with an overview of the report's four recommendations for national implementation presented by keynote speaker Dr. Gail Cassell of Eli Lilly and Company. The recommendations are as follows.

1. Increase America's talent pool by vastly improving K-12 mathematics and science education.
2. Sustain and strengthen the nation's commitment to long-term basic research.
3. Develop, recruit, and retain top students, scientists, and engineers from both the United States and abroad.
4. Ensure that the United States is the premier place in the world for innovation.

In addition to Cassell, the event hosted a series of distinguished speakers including, Dr. Ruth Wooden, President of Public Agenda, and Mary Jo Waits, founding Director of Washington D.C. based Pew Center on the States.

The highpoint of the day's events came during lunch when Governor Mike Beebe took the stage.

During his twenty minute speech to the capacity crowd of nearly four hundred, Governor Beebe cited a "crying need" for more teachers and a more educated workforce with skills in science, technology, engineering and mathematics. He spoke about the importance of keeping pace in a global economy. "The key for America is to figure out what we're going to be doing ten years from now that nobody else has figured out yet."

We don't have any choice," he said. "You can't stand still. You're either going forward or backwards. And, I for one, don't intend for Arkansas to go backwards."

Based on the overwhelming success of the event, Arkansas STEM Coalition leaders and six student fellows received a special invitation from the National Academies to attend the 2nd National Convocation of Rising Above the Gathering Storm in Washington, D.C.

Success Story: Amfuel Saves Company Capital and Jobs With Use of TTAG Funding

AMS client Amfuel is located in Magnolia, Arkansas and employs a workforce of 300. The company is a major fuel cell supplier of the OEM aircraft and helicopter industry and provides fuel and liquid containment solutions for military applications.

During Fiscal Year 2008, government inspectors who check the quality of the products were unsure if entering into the fuel cells was safe and asked Amfuel to provide verification that inspectors were not at risk of exposure to unknown hazards.

Inspections were put on hold until verification of a safe work environment could be established. This delay in inspections brought a multi-million dollar contract to a halt.

Amfuel, after reviewing their program, policies and procedures decided to strengthen their Confined Space Entry program and wanted to demonstrate that hazards were being managed safely. They contacted Safety & Environmental Associates, Inc. (SEA) for solutions, who in turn contacted Scotty McKnight, Project Manager from Arkansas Manufacturing Solutions (AMS) for assistance through the Technology Transfer Assistance Grant (TTAG) Program.

SEA has developed several safety programs for confined spaces and has experience in the areas of concern presented by Amfuel. Derek Jennings of SEA was assigned as project leader and assembled a team which included Shauna Scott, Chemical Engineer, and Greg Knight, Safety Specialist, to develop solutions. The SEA team worked with Amfuel to identify chemical components, conduct industrial hygiene monitoring, develop a written Confined Space Entry and Rescue program, and present these solutions to the government committee of inspectors and scientists. AMS Project Manager, Scotty McKnight, provided guidance and assistance in completing the TTAG application and obtaining the grant funds. She also oversaw the project implementation.

AMS support, along with SEA's technical assistance and guidance, helped Amfuel in improving its safety program, which led to resolving a significant contract issue.

As a result of this TTAG funded implementation project, Amfuel saved a minimum of $5000 in direct costs by developing a safety program utilizing the TTAG program. This project alone released the hold on the contract which saved company capital totaling $5.6 million and 40 jobs.

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.

The Seed Capital Investment Program (SCIP)		
Company Company	Year	Funds Awarded
Station X, LLC	2008	$20,102.00
Lynndale Systems, LLC	2008	$123,000.00
Infinate Enzymes, LLC	2008	$97,551.00
Duralor	2008	$250,000.00

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

The Technology Development Program (TDP)		
Client	Project Title	Investment
BioStragegies LC	Plant-Based Bioproduction of Chicken IL-12 Adjuvant for Bird Flu Vaccines	21,488.00
InvoTek Incorporated	AccuPoint Commercialization - an assistive technology for augmentative communication systems specifically for people with disabilities	50,000.00

The **R&D Tax Credit Incentive Program** is co-administered by the Arkansas Economic Development Commission and the Arkansas Science & Technology Authority with the goal of encouraging private sector financing of research and development jobs within Arkansas.

R & D Tax Credits			
Name of Business	Resolution	Total Expenses	Credit Amount
Vegrandis, LLC	08-14	$445,058.70	$146,869.37
Arkansas Power Electronics International	08-17	$1,363,765.53	$450,042.62
BioBased Technologies, LLC	08-19	$427,020.62	$140,916.80
BioBased Systems, LLC	08-20	$343,148.47	$113,238.99
BioBased Insulation	08-22	142,417.87	46,997.90
BioDetection Instruments, LLC	08-23	208,074.82	68,664.69
BlueInGreen, LLC	08-24	194,358.23	64,138.22
Insight Ecosystems, LLC	08-25	186,882.00	61,671.06
InvoTek, Inc.	08-26	188,481.35	62,198.05
NanoMech, LLC	08-27	255,504.66	84,316.54
Nanomaterial and Nanofabrication Laboratories	08-28	664,185.30	219,181.15
Ocean NanoTech, LLC	08-29	154,392.91	50,949.66
SFC Fluidics, LLC	08-30	221,918.56	73,233.12
Lynguent, Inc.	08-31	$306,677.00	$101,203.41

Increasing Visibility

Success Story: Authority Takes Center Stage In Media Blitz

The Authority continued to stay in the public eye in 2008.

From statewide media coverage to involvement in a national debate on the changing global economy as part of the Jim Lehrer News Hour, Authority staff, Board members and clients dominated the spotlight over the last Fiscal Year.

This was due, in no small part, to high profile coverage of three Authority events that pointed to the importance of STEM education, manufacturing and Arkansas research.

Garnering statewide media coverage, a crowd of nearly 400 state leaders met for the Authority sponsored "*Rising Above the Gathering Storm: Energizing and Employing Arkansans for a Brighter Economic Future*." During the event held at the Statehouse Convention Center, nationally recognized leaders in education spoke on the critical need for reform in our nation's schools.

Days later, Arkansas Manufacturing Solutions (an Authority program) hosted "*Manufacturing Matters 2007: Eureka! Winning Ways: Choices For Growth*." The day long event highlighted the importance of streamlining organizational and manufacturing practices to stay competitive in the 21st Century economy.

Finally, Authority staff joined Governor Beebe at the State Capitol to announce the release of 9 million dollars from the National Science Foundation to create the Arkansas ASSET Initiative. This initiative is a multi-university research endeavor, a team effort, to develop new innovations in wireless nano-sensor technology and plant-based bioproduction.

Thanks to coverage of these events in local and statewide electronic media and news publications, the Authority enjoyed its most visible year to date.

Operations Report
Fiscal Year 2008

General Operations		Actual				
Character	Budget	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Regular Salaries	558,698	152,942.20	127,186.32	123,347.26	127,946.98	531,422.76
Extra Help	12,000	0.00	0.00	0.00		0.00
Maintenance and Operations	165,410	50,356.29	40,158.79	38,386.87	29,961.63	158,863.58
Fringe Benefits	164,464	43,395.48	37,874.69	35,730.69	38,439.04	155,439.90
Research						
(Reallocation)						
Conference Fees and Training	27,223	3,897.49	4,059.75	1,500.00	7,958.50	17,415.74
Professional Fees	16,775	0.00	3,272.30	2,446.87	1,848.86	7,568.03
Capital Outlay						
Marketing and Redistribution	0					
Technology Development	156,975	21,240.00	29,250.00	53,750.00	52,735.00	156,975.00
Research Matching	292,653	0.00	292,653.00	0.00		292,653.00
Seed Capital Investments	292,653	0.00		220,551.00	72,102.00	292,653.00
TOTAL	1,686,851	271,831.46	534,454.85	475,712.69	330,992.01	1,612,991.01
AMS Support		**Actual**				
Character	**Budget**	**1st Qtr.**	**2nd Qtr.**	**3rd Qtr.**	**4th Qtr.**	**Total**
AMS Support	257,182	0.00	0.00	150,564.57	106,617.43	257,182.00
Seed Capital Fund		**Actual**				
Character	**Budget**	**1st Qtr.**	**2nd Qtr.**	**3rd Qtr.**	**4th Qtr.**	**Total**
Seed Capital Fund Balance	1,900,000	0.00	0.00	250,000.00		250,000.00
Network Operations		**Actual**				
Character	**Budget**	**1st Qtr.**	**2nd Qtr.**	**3rd Qtr.**	**4th Qtr.**	**Total**
Regular Salaries	139,056	35,603.08	27,460.47	32,806.60	31,332.91	127,203.06
Maintenance and Operations	124,456	21,048.67	25,408.72	21,559.14	28,743.48	96,760.01
Fringe Benefits	40,676	10,101.62	8,694.28	9,829.35	9,476.02	38,101.27
Grants	389,585	50,399.50	144,070.64	100,593.15		295,063.29
Conference Fees and Training	24,600	255.00	1,336.74	6,517.45	6,235.82	14,345.01
Professional Fees	50,000	5,001.00	11,375.00	10,300.00	8,850.00	35,526.00
Capital Outlay						0.00
Field Services	1,094,324	289,419.59	337,876	192,312	234,333.58	1,053,941.38
Miscellaneous Fees						0.00
TOTAL	1,862,697	411,828.46	556,222.24	373,917.51	318,971.81	1,660,940.02
EPSCoR Operations		**Actual**				
Character	**Budget**	**1st Qtr.**	**2nd Qtr.**	**3rd Qtr.**	**4th Qtr.**	**Total**
Regular Salaries	98,000	0.00	11,307.68	39,576.85	11,307.70	62,192.23
Maintenance and Operations	79,016	0.00	15,844.58	4,042.36	20,604.68	40,491.62
Fringe Benefits	29,613	0.00	2,983.02	10,095.34	2,983.03	16,061.39
Conference Fees and Training	3,333	0.00		0.00		0.00
Professional Fees	40,667	0.00		0.00	32,957.62	32,957.62
Grants	2,749,371	0.00		65,072.33	2,012,917.31	2,077,989.64
Grants (GIF)kbmd50p	1,500,000	0.00		190,597.64	945,694.72	1,136,292.36
TOTAL	4,500,000	0.00	30,135.28	309,384.52	3,026,465.06	3,365,984.86

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2008 Board of Directors

Gary Phillips Ph.D. - Chair
Missouri State University , West Plains
Department of Communications
Term Expires 2009

Sue McGowan
Director of Economic Development/CEO
Paragould/Greene County Chamber of Commerce
Term Expired 2008

Paul Mastro - Vice Chair
Vice President - Manufacturing and Engineering
George Fischer Sloane
Term Expires 2010

George Williams - Secretary
Director of Business Development
Intellimation Technologies
Jonesboro
Term Expires 2011

Joel Harrison
Nuclear Operations Manager, NDE for
Washington Group Int'l
Term Expires 2012

Johnny Hooks
Agency Field Executive
State Farm Insurance
Term Expires 2012

Wayne Hartsfield
Chairman
Regions Bank
Searcy , AR
Term Expires 2011

John White Ph.D.
Chancellor
University of Arkansas Fayetteville
Term Expires 2010

Stephen Seidman, Ph.D
Dean
College of Natural Sciences & Mathematics
University of Central Arkansas
Term Expires 2010

Collis Geren Ph.D.
Vice Provost for Research
University of Arkansas, Fayetteville
Authority Research Committee Chair
Term Expires 2009

Steve Floyd Ed.D.
Arkansas Department of Higher Education - Little Rock
Term Permanent

Robert Hall
President
Hall Manufacturing
Authority Industry Committee Chair
Term Expires 2012

Cesar Compadre, Ph.D
UAMS
Associate Professor
Pharmacy and Public Health
Term Expires 2011

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 2009

Heartsill Ragon
Attorney
Gill Elrod Ragon Owen & Sherman, PA
Term Expires 2011

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