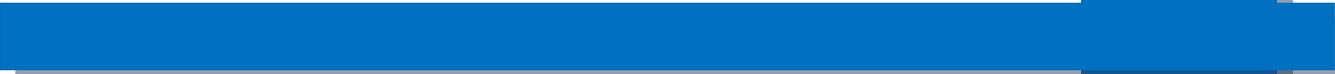




American Cluster Innovation: Cluster Profiles from the 50 States

Assembled by
Robin Transgrud
With assistance from
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Harvard's Institute for Strategy and Competitiveness (isc.hbs.edu)



High-Tech Industry Cluster *Arizona Nanotechnology Cluster*

ARIZONA

Seeking to emerge as a national leader in the high-tech industry, Southern Arizona's high-tech industry cluster includes over 1,200 companies, employs over 50,000 people, and generates nearly \$6 billion in revenues each year. Identified as an emerging field within the high-tech industry, the Arizona Nanotechnology Cluster seeks to promote



"There is really no real nano-bio leader in the country," Kim said. "The interaction between nano and bio is the next step for the future."

Chairman of Arizona Nanotechnology Cluster, Dr. Matt Kim, is also the Founder and President of QuantTera.

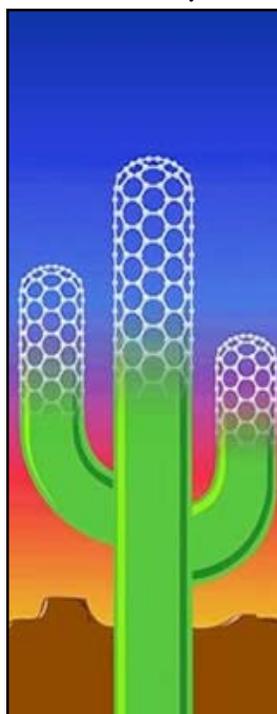
business development and share technological advances in the fast-growing field of Nanotechnology in Arizona.

Formed in January 2003, the Arizona Nanotechnology Cluster's membership includes an active group of interested engineers (electrical,

mechanical and chemical), scientists (medical and materials) and businesspeople from both industry and academia. Based in Tucson, the Southern Arizona cluster has members across the state of Arizona.

The Arizona Nanotechnology Cluster specifically collaborates with Arizona Universities, including: Arizona State University's Nanostructures Research Group and three departments within the newly established Biodesign Institute and the University of Arizona's Advanced Microsystems Laboratory and Microelectronics Design and Test Laboratory. The organization has also partnered with QuantTera, Ridgetop Group, Inc, Intel, Motorola, Microchip, Texas Instruments, ST Micro and others. Through their support from Southern Arizona Tech Council, the Arizona Nanotechnology Cluster also is supported by local and state government agencies.

Since 2006, the Arizona Nanotechnology Cluster has held an annual symposium on Nanotechnology and the progress of the industry in Arizona. Attracting a broad group of local, national, and international organizations interested in Arizona's nanotechnology industry - including business representatives from France and Singapore - the keynote speaker of the 2008 symposium was Brad Buswell, Chief of Staff, Department of Homeland Security Science and Technology Directorate.



"The National Science Foundation predicts the market for nanotechnology-related products and services will be \$1 trillion in 2015."

"Nanotechnology, which deals with devices typically less than 100 nanometers in size, is expected to make a significant contribution to the fields of computer storage, semiconductors, biotechnology, manufacturing and energy."

CITATIONS:

www.aznano.org;
www.satc-az.com;
<http://www.nanotech-companies.net>;
"Nanotechnology may give 'small' boost to bioscience industry," Ty Jones, Phoenix Business Journal, January 5, 2007.

Contact: Cluster Chair, Dr. Matt Kim at 602-214-3524 or mk@quanttera.com

Clean Technology Industry Cluster

CleanTECH San Diego

CALIFORNIA



A 2005 survey by AeA's 2007 "Cyberstates," shows that California employs more technology workers than any other state, with twice as many workers as Texas, which came in at number two. The survey also showed that, California added 14,400 jobs in 2005 to bring the total number employed by the technology industry to 919,300. In addition, technology jobs in California also provide the highest compensation, with an average over \$90,000,

it is nearly 100% higher than the state's average wage. Given California's leadership in the technology industry, it is not surprising that when a 2004 report by Environmental Entrepreneurs and the Natural Resources Defense Council claimed venture capital investments in California's clean technology industry through 2010 could seed 52,000 to 114,000 new jobs statewide, that a conscious effort to transition and grow California's technology industry into a clean technology industry was developed. In April 2007, San Diego Mayor Jerry Saunders - intent upon making San Diego the world's clean tech industry center - announced the creation of their Cleantech Initiative, CleanTECH San Diego. The effort seeks to spark a cleantech cluster in San Diego through the collaboration of entrepreneurs, academics, environmentalists, and other relevant experts to promote new businesses focused on energy efficiency, renewable energy, transportation and water management. As of June 2007, there were 148

"Clean technology or clean tech includes clean, green, renewable and alternative technologies and related business models offering competitive returns for investors and customers while providing solutions to global, environmental, and security challenges."

"In 2006, there were six cleantech deals valued at \$54 million in the region."

*"CleanTECH San Diego is a great example of public and private cooperation to help grow a strong, viable, and robust regional clean-tech economy."
- Ron Pernick, Co-founder and Managing Director, Clean Edge, Inc.*

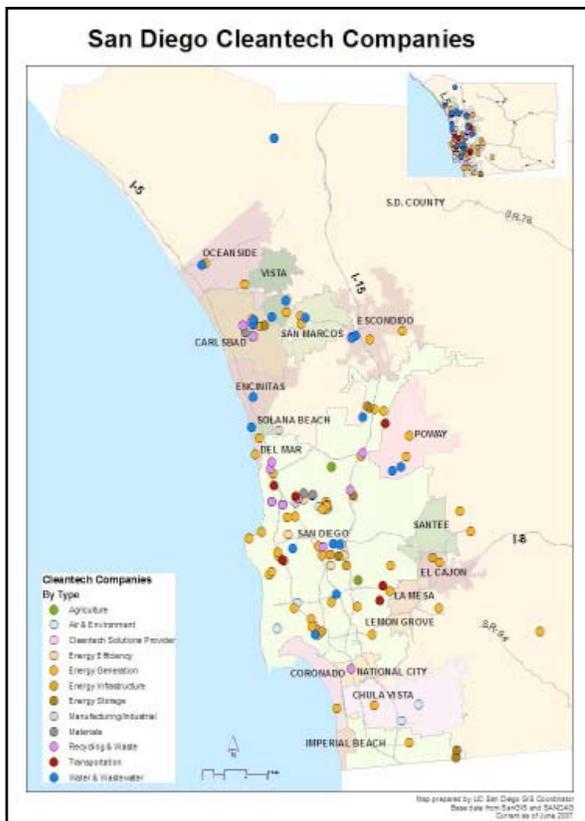
"CleanTECH San Diego brings together the regions strengths in research, industry, and government to address the challenges and economic opportunities in pursuit of sustainable practices."

- Duane Roth, CEO, CONNECT, cleantech trade association

CITATIONS: <http://www.cleantechcalifornia.com/index.html>; <http://www.cleantechsandiego.org/>; Cleantech Industry in San Diego, An Assessment of Assets and Capabilities, Global Connect, A program of UC San Diego Extension, June 2007; "Creating the California Cleantech Cluster, How Innovation and Investment Can Promote Job Growth and a Healthy Environment, Patrick R. Burtis, Bob Epstein, Roland J. Hwang, September 2004.

cleantech companies already in the San Diego area, 89 of which are within the City of San Diego. And, in addition to San Diego's natural resources, being home to 50 research institutes, 6 top-rated universities, and 40 venture capital firms, makes the area ripe for the cleantech industry.

To implement the initiative, the City's Economic Development Division is working in partnership with the San Diego Regional Economic Development Corporation (EDC) and the University of California, San Diego. Of the 148 cleantech companies that support the cluster, 67 companies offer products or services for energy generation. The next largest groupings are in water and wastewater, energy efficiency, and recycling and waste. Most notably, are industry leaders Kyocera Solar, General Atomics, Hydranautics, and the Verenum Corporation support the cluster initiative. Through a series of cleantech forms, with the industry, academic and government leaders in the industry, CleanTECH San Diego intends to strategically foster the region's growth.



Contact Lisa Bicker, President and Chief Executive Officer at lisab@cleantechsandiego.org

Insurance and Financial Services Industry Cluster

Connecticut Insurance and Financial Services (IFS)

CONNECTICUT

Connecticut's insurance and financial services industry cluster (IFS) is one of the nation's strongest: Connecticut has the highest concentration of insurance carrier jobs in the U.S., with 66% more concentrated IFS jobs in the state than the U.S. The industry accounts for 17% of the Gross State Product, there are more than 67,000 insurance carrier jobs in Connecticut, and the state ranks second in the highest concentrations of total IFS jobs and highest paid wages. Established in 2003, IFS functions as a disciplined system of corporate, education, and government collaboration that enhance the competitive strength of each IFS company, increases employment opportunities, expands workforce diversity in the IFS sector, and develops a pool of qualified and experienced employees in the state by: enhancing and protecting the business climate for insurance and financial services companies in the state of Connecticut; and collaboratively addressing trends, changes, threats, and opportunities that impact the industry and state. Specific industry partners include Hartford companies such as The Hartford Financial Services Group and Hartford Steam Boiler Inspection & Insurance Company as well as Connecticut branches of national companies such as MetLife, United-Health Group, Sovereign Bank, AIG, and more. IFS has collaborated with University of Connecticut and the University of Hartford to promote the industry through its workforce initiative: IFS Center for Educational Excellence. In Metro Hartford, where IFS companies provide nearly 70,000 jobs - or on in 10 jobs overall - the initiative is an essential asset to the area.



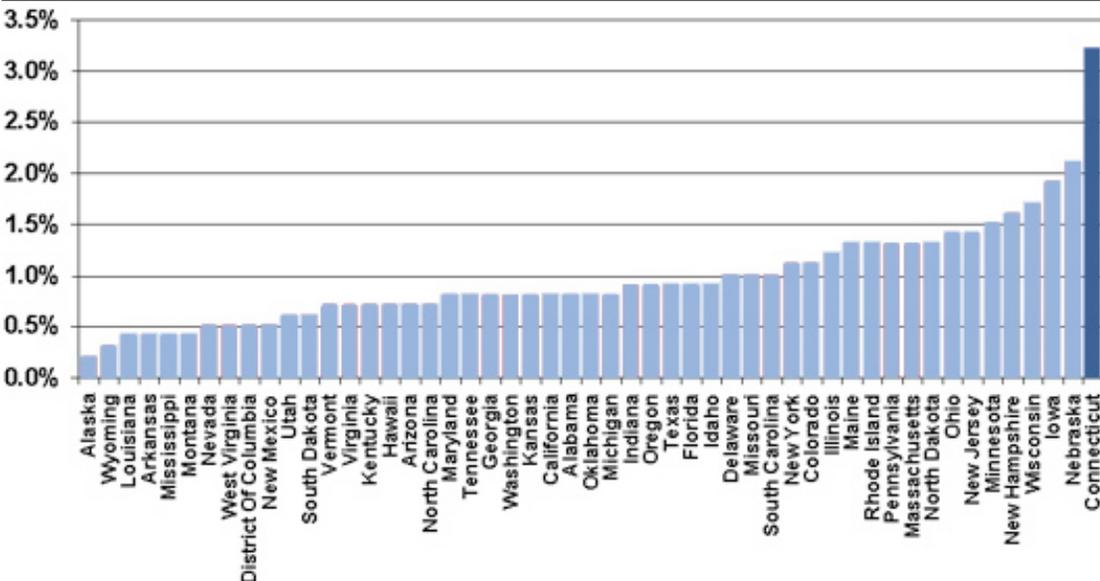
IFS was able to create the IFS Center for Educational Excellence through a U.S. Department of Labor grant. With the federal funding, IFS partnered with numerous insurance and financial corporations as well as the state community college system to create the workforce model. Providing training and tuition-free courses for employees, the IFS Center for Educational Excellence program provides IFS Financial Analyst Certificates, advanced IT training, and plans to provide Associate Degrees in IFS in 2009. Recognizing the importance of the insurance and financial services industry to the economy of the state; Connecticut Insurance and Financial Services, with its workforce model, is successfully collaborating to accelerate growth in the industry.

"The insurance and financial services industry nationwide—and here in Connecticut—is in a state of transition," says Robert F. Flynn, the cluster's executive director. "However, now that we have a cluster mechanism, we can proactively tackle the threats and capture the opportunities presented while this transition unfolds. The outcome will be a stronger, more vibrant industry and broader awareness of Connecticut as an IFS center of excellence. [...]"

"The insurance sector contributes to Connecticut's economy at a rate three times the national average, spurring growth in other industries"

CITATIONS:
<http://www.connecticutifs.com>; Harry J. Lew's "CT's IFS Cluster: Collaborating to Protect and Grow an Industry," www.avanza.com.net

Employment: Insurance carriers (SA) as a percent of state total



Financial Services Industry Cluster

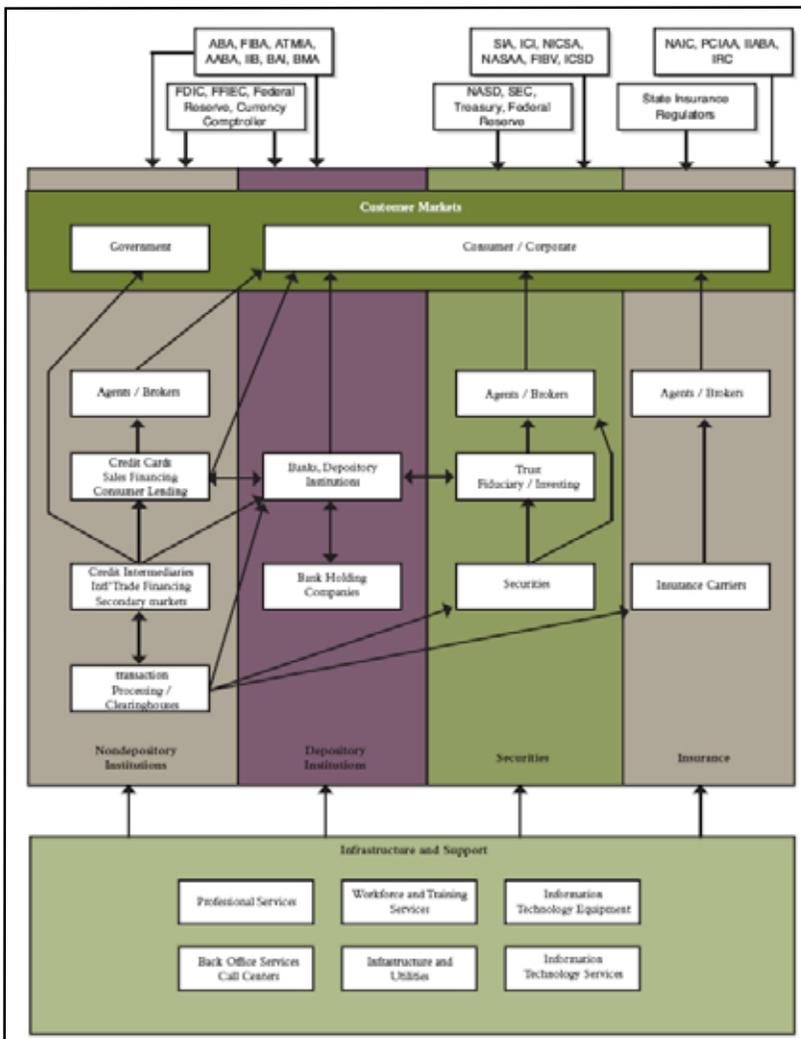
Financial Florida

FLORIDA

Florida's nearly 123,000 Financial and Professional Services companies employ almost 900,000 workers at locations around the state. In recognition of its importance to the Florida economy, the industry has been designated as a "high impact" sector.

Formerly known as the Florida Financial Services Cluster Initiative (FFSCI), the organization became Financial Florida when it received NGO status in 2005. In sum, the organization seeks to

Map of Florida Financial Services Cluster



create the best possible business environment for retaining and expanding financial services. Financial Florida: serves as the voice of the non-depository financial services industry in the state of Florida. More specifically, it seeks to proactively market Florida as the best business environment for non-depository financial services, and creates programs, in partnership with the states schools and universities, that will generate leadership and develop a workforce with the skills necessary to support the future growth of the industry. Participating organizations have included JP Morgan Chase, Verizon, University of Tampa, Jacksonville Chamber of Commerce, Citibank, University of South Florida, IBM Financial Services, Capital One, Metro Orlando Economic Development Commission, and approximately 10 other local and national organizations involved in the financial industry in Florida.



Irv Cohen, Chairman of Financial Florida: "If we create enough good jobs, people will want to come here and they'll want to invest in the community. We want to be able to create those opportunities. We're all in this together."

Florida's Financial and Professional Services companies have a total payroll of more than \$58.4 billion and an average wage of approximately \$64,521.

As a result of their collaboration with Financial Florida, the University of Tampa and the University of South Florida have tailored their curriculum specifically towards the financial industry. And USF's College of Business established a Financial Services Education Center with a curriculum that emphasizes coursework and experiential learning in finance, accounting, information systems and economics. It also includes internships and interactions with business leaders through mentoring, classroom instruction and guest speakers. These efforts combined seek to promote job creation in the financial services industry cluster in Florida.

CITATIONS:
 Financial Florida Services 2004 Cluster Research; <http://financialflorida.com/>; Margie Manning, Nonprofit aims to meet financial work force needs, Tampa BayBusiness Journal, May 7, 2007.

Aviation Manufacturing Industry Cluster

Kansas Aviation Manufacturing Cluster

KANSAS

The aviation manufacturing industry in Kansas employs 17.8 percent of all Kansas manufacturing employees and contributes to 26% of all manufacturing wages – with the the total wages paid in 2006 at \$1.99 billion. Defined by the North American Industrial Classification System as sector 3364, the Kansas Aviation Manufacturing Cluster consists of over 75 establishments involved in the manufac-

In 2006, the average annual wage for all industries in the United States was \$39,965.

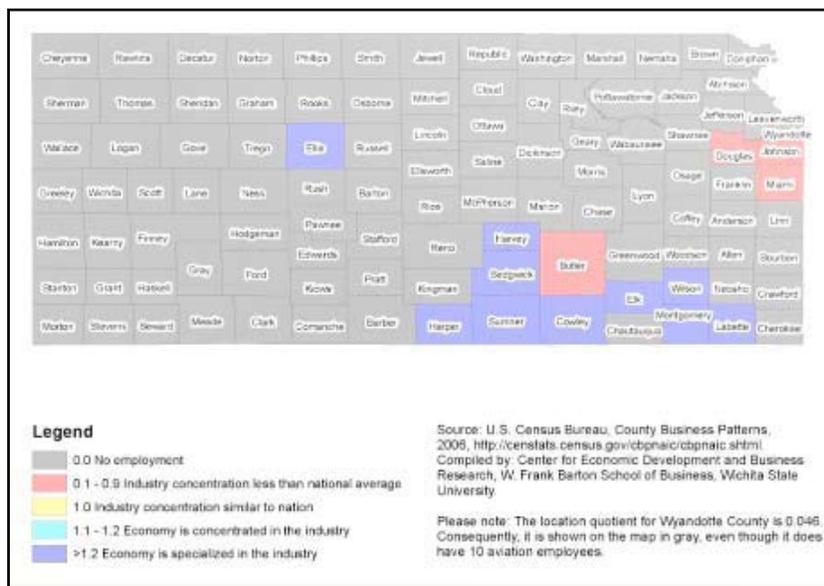
In Kansas, the average annual wage in the aviation cluster was well above the national average for all industries with an average annual wage of \$63,238.

turing of complete aircraft, missiles and space vehicles, manufacturing aerospace engines, developing and making prototypes of aerospace products, aircraft conversions or complete aircraft overhaul. The cluster includes a total of 78 member organizations including, aviation manufacturing companies, the National Institute for Aviation Research (NIAR), Wichita State University, and more. While the establishments part of the cluster are located across the state of Kansas, the cluster is concentrated in Sedgwick County. Where, in 2006, it was home to the

largest number of establishments, paid the largest amount of aviation manufacturing wages, and also had the largest number of aviation manufacturing and service employees in the state.

Leading the Kansas Aviation Manufacturing Cluster is Wichita State University's Center for Economic Development and Business Research. The Center conducts research and reports on various Kansas industry clusters, serves as a resource on Kansas business development, and links the business and economic development community with Wichita State University and the W. Frank Barton School of Business.

Due to the cluster's strength, it is attracting large-scale aviation projects. In April 2008, Cessna Aircraft Co announced that it would create a plant in Kansas, creating more than 1,000 jobs and making an \$800 million dollar investment in Kansas. The new project will create even more jobs for Kansas since research shows that each aviation job creates an additional 2.9 jobs; thus, nearly 4,000 new jobs will be created as a result of the new plant. In addition, according to the National Institute for Aviation Research, Wichita State University now ranks third among all U.S. universities in aerospace engineering research and development. "This ranking is a demonstration of the commitment from our federal congressional delegation, Kansas legislature and the surrounding aviation industry to support additional research to help ensure the United States and Kansas will remain strong in aviation pioneering," says NIAR executive director Dr. John Tomblin.



Aviation Employment Industry Concentration by Kansas County, 2006

“Aviation manufacturing companies supplied 2.8 percent of all employees in the Kansas economy in 2006: compared to aviation manufacturing supplying 0.3 percent of all employees nationally in 2006.”

“Although the cluster is expected to gain 4,450 net new employees from 2004 to 2014, the industry is expected to need more than 10,000 total new employees when taking retirement and turnover rates into consideration.”

CITATIONS:
<http://webs.wichita.edu/?u=CEDBR&p=/KScluster/Clusterpg;>
 “Editors’ Location Picks 2008,” Donna Clapp, Business Facilities Magazine, September 2008; http://www.businessfacilities.com/bf_08_09_cover.php; “Kansas Aviation Manufacturing Cluster,” by the Center for Economic Development and Research at W. Frank Barton School of Business, Wichita State University, September 2008.

Chemical Industry Cluster

Louisiana Chemical Industry Alliance

LOUISIANA

Directly employing over 30,000 citizens, and paying salaries that total over \$1.7 billion per year, the Louisiana chemical industry is vital to the state's economy. Leading the chemical industry is the Louisiana Chemical Industry Alliance (LCIA), which is made of of plants and suppliers, and consists of 750 members and more than 50,000 employees from Louisiana's petrochemical industry and related businesses.

"In addition to the 22,135 jobs directly created by the chemical industry in Louisiana, 119,183 jobs are generated indirectly by chemical industry activity in Louisiana and other states. In total, 141,318 Louisiana jobs are supported by the chemical industry and generate \$6 billion in earnings and \$121.8 million in state and local taxes on personal income."

-- American Chemistry Council

The majority of Louisiana's chemical industry is located in Baton Rouge, but the infamous chemical corridor extends from Baton Rouge to New Orleans along the Mississippi River. With the environmental concern that the chemical industry has raised in the corridor, the LCIA has environmental safety a priority within its initiative to foster business and employment growth within the industry.

The Louisiana Chemical Industry Alliance, founded in 1990, is an organization consisting of nearly 70 chemical companies and several hundred suppliers, contractors and vendors. Collaborating closely with the Louisiana Chemical Association (LCA) - founded in 1959 to represent Louisiana's chemical manufacturers - President of both the LCIA and the LCA, Dan Borné leads the LCIA in representing the interests of its members before legislative and regulatory bodies and promoting a positive public image for the industry as a whole.

With joint support from the LCA, the Louisiana Chemical Industry Alliance seeks to improve the competitiveness of Louisiana's chemical industry sector through an eight point plan that includes developing industry-friendly energy policies, collaborating with local and state government for industry support, advocating tax

policies that encourage companies to locate in Louisiana, supporting the vocational and higher education system, growing research and development partnerships, advocating for investment in infrastructure needs, promoting a healthier and safer chemical industry, and reducing hidden costs within the chemical industry.

Through collaboration with the LCA, the LCIA has organized LAMP, Louisiana Manufacturers Political Action Committee. The LAMP members, whom are all members of LCIA, work to promote industry objectives - which entail providing a safe, healthy environment for Louisiana communities and growing the state's economy -- within the political process.



Dan Borné,
Louisiana Chemical
Industry Alliance
President

"The average salary in the Louisiana chemical industry is roughly \$55,000, 64% higher than the state average. The Louisiana chemical industry also provides income for about 240,000 Louisiana citizens."

"As one of the state's largest taxpayers, Louisiana's chemical industry contributes and generates nearly \$1 billion each year in tax revenues for Louisiana."

"More than 564,000 jobs (31.2% of all jobs in Louisiana) are dependent on chemical products and generate \$22.8 billion in earnings."

CITATIONS: <http://www.lca.org/lcia>;
<http://www.lca.org/issues.asp>; <http://images.harc.edu/Sites/CHP/Markets/Chemicals01.jpg>;"Will natural gas prices turn off Louisiana's chemical industry?" by Michael A. Mohammed, Energy Bulletin, Jul 31 2004.
<http://www.energybulletin.net/node/1333>



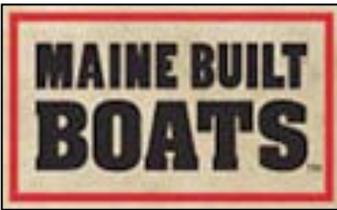
Louisiana Chemical Industry Alliance

Contact Dan S. Borné, President of Louisiana Chemical Industry Alliance at 225-383-7791

Boat Building Industry Cluster

Maine Built Boats (MBB)

MAINE



With a nearly 400 year history of boat building, Maine's boat building industry's annual sales top \$650 million. There are approximately 450 companies and 5,000 jobs tied to Maine's boat building cluster, and the industry cluster is led by non-profit organization, Maine Built Boats, Inc. (MBB). Founded in 2005, Maine Built Boats seeks to join companies in the industry, universities, and boat building schools in

Maine to combine the craftsmanship knowledge of generations of boatbuilders with new technological advances to grow the industry. MBB members consist of various boatbuilding companies – including power, sail, yacht, paddle, and restoration boat companies – as well as the University of Maine. There are currently over 60 members of Maine Built Boats, Inc. located primarily along the coast and also in the mainland.

MBB, was established to strengthen and expand Maine's boat building industry. In addition to supporting marine industry training and the development of technologies that enhance industry products and performance, MBB also has created a unified brand that seeks to present Maine as the worldwide leader in boat building.

In 2006, Governor Baldacci established Maine's North Star Alliance Initiative (NSAI) to develop business and jobs in coastal Maine. To carry out their mission, NSAI has strategically partnered with and provided funding for three major industry associations: the Maine Composites Alliance, the Maine Marine Trade Association, and Maine Built Boats Inc. After receiving a \$15 million grant from the U.S. Department of Labor Workforce Innovation in Regional Economic Development Initiative, the North Star Alliance Initiative has worked particularly close with Maine Built Boats.

In 2007, MBB received a \$1.8 million grant from the NSAI to promote the Maine boat building industry.

And recently exposing itself on the world stage as part of its branding initiative, MBB exhibited in boat shows in Fort Lauderdale, Monaco, and China. This fall, MBB also created a documentary film on its boat building tradition, with the collaboration of sailing legend Gary Jobson, titled *Maine Built Boats: Art and Soul*, as part of its marketing efforts.

Maine's Department of Economic and Community Development Commissioner, John Richardson claims, "The boat building industry holds great importance to our state's economy and the development of this industry cluster has exciting potential through the collaboration of Maine Built Boats and the North Star Alliance. The growing popularity of Maine boats demonstrates how we can keep traditional industries vibrant through innovation and technology."

"Our purpose is to raise the profile of the boat-building industry, as an industry, outside the state in hopes of increasing exposure and bringing in new clients," said Paul Rich, 2005 President of Maine Built Boats, Inc.

CITATIONS:

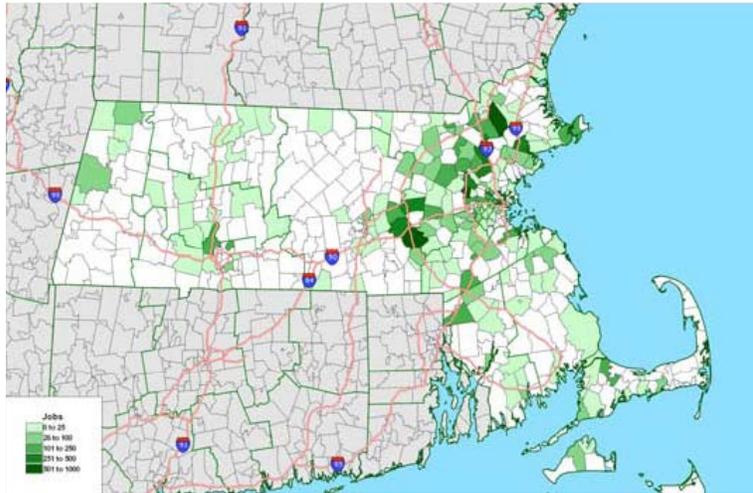
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"built for the future,"
"Bangor Daily News, November 5, 2005, www.mainebuiltboats.com/files/news/bangor_daily_nov2005.pdf;"
"Cultivating Clusters, What does it take to grow Maine's economic clusters? Time, money, patience – and a lot of networking,"
Recebba Goldfine, Mainebiz, June 30, 2008. <http://www.mainebiz.biz/news/42057.html>;
http://www.mainebuiltboats.com/about_us/default.asp;
"North Star Alliance Initiative Launches Brand Strategy to Promote Maine's \$650 million Boat Building Industry,"
Maine Department of Economic and Community Development, March 17, 2008. <http://www.econdevmaine.com/announcements/details.asp?PressID=149>;
http://www.meliving.com/maps/maine_map.jpg

Renewable Energy Industry Cluster

Massachusetts Technology Collaborative: Renewable Energy Trust

MASSACHUSETTS

There are 556 companies across Massachusetts that identify themselves as part of the Massachusetts' clean energy cluster, and 116 of those companies have been founded since 2001. Supporting these companies is Massachusetts Technology Collaborative's Renewable Energy Trust. The Renewable Energy Trust seeks to increase the supply and demand for renewable energy while stimulating economic growth in the alternative energy industry with the primary goal of generating maximum environmental and economic benefits to Massachusetts' ratepayers. The Trust provides financial assistance to individuals and businesses for solar panels and wind turbines at their homes and facilities, works with communities to incorporate green design into schools, helps emerging clean energy businesses flourish



Clean Energy Jobs by Municipality

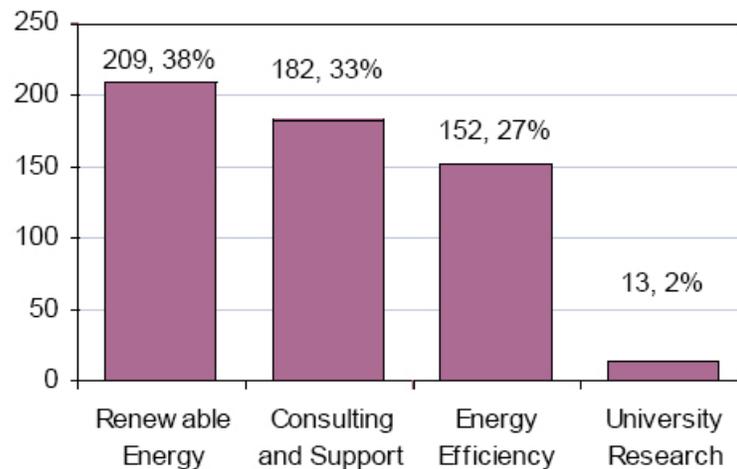
power conversion technologies; storage and conversion technologies connected to qualifying generation projects; fuel cells; and waste-to-energy.

The Massachusetts Technology Collaborative (MTC), administers the Trust, and since the first program opportunities were announced in March 2001 through the close of fiscal year 2007, MTC has awarded more than \$250 million in financial assistance in the form of grants, loans, rebates, guarantees, and services.

In 2007, Massachusetts was selected by the U.S. Department of Energy to build one of two new national wind turbine blade-testing facilities. And a major Trust investment of \$15.5 million helped Evergreen Solar choose Massachusetts for its \$150 million expansion that will add up to 375 new jobs in the area.

in the Commonwealth, and more. Created in 1998, the Renewable Energy Trust, which works has supported more than 1,300 clean energy projects across the Commonwealth, funded 345 new projects throughout the state in 2007 alone. The Trust provides funding in the following 'renewable' technology areas: solar photovoltaic and solar thermal electric energy; wind energy; ocean thermal, wave or tidal energy; landfill gas; naturally flowing water and hydroelectric; low emission, advanced biomass

556 Companies Identified in Massachusetts Renewable Energy Industry Cluster: Companies, Agencies and University Centers



"Massachusetts' clean energy cluster supports 14,400 jobs and is poised to be 10th largest cluster in the state."

"Surveyed executives expect 30% job growth in renewable energy firms and 25% for energy efficiency firms over the next year. Weighting by existing employment, growth is still predicted to be 20%. This would be more than 3 times greater than the next fastest growing cluster in Massachusetts grew over the past year."

CITATIONS:
Massachusetts Technology Collaborative, Renewable Energy Trust, "Clean Energy Opportunities from the Renewable Energy Trust" September 2007 and "Massachusetts Clean Energy Industry Census," August 2007, <http://masstech.org/renewableenergy/index.html>; "Top Cities for Cleantech Incubation Clusters," Warren Karlenzig, Sustainlane Government, <http://www.sustainlane.us/articles/cleantech.jsp>

Technology Industry Cluster

Automation Alley

MICHIGAN

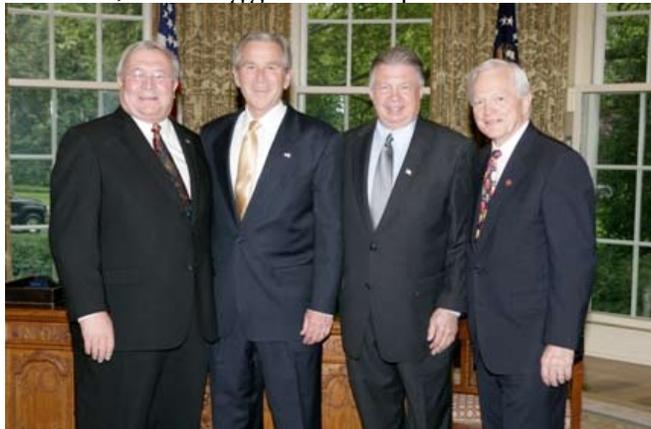
Home to more than 11,000 technology workers and 7,300 technology businesses in Southeast Michigan, Automation Alley, Michigan's largest technology business association, drives growth in the region. In 2006, the technology industry employed 311,438 people in Automation Alley, representing 14.7 percent of employment in the region. Nationally, 9.1 percent of all employment was in the technology industry. This puts Automation Alley 63 percent above the national average for share of employment in the technology industry.

Covering the Southeast corner of Michigan, Automation Alley encompasses Genesee County, Livingston County, Macomb County, Monroe County, Oakland County, St. Clair County, Washtenaw County, Wayne County and the City of Detroit.

"Automation Alley was recently awarded the prestigious "E" Award for Exporting, the nation's highest award to honor exporters. Automation Alley is the first non-profit trade organization in Michigan to receive the award, which serves to recognize U.S. firms for their competitive achievements in world markets and their part in increasing U.S. exports abroad."

Automation Alley prides itself in uniting leaders in technology, academia, manufacturing, engineering, production and R&D to promote a highly-educated workforce and stimulate the high-tech industry in Southeast Michigan. The initial idea for Automation Alley was articulated in 1997, when Oakland County Executive L. Brooks Patterson's shared his vision for making Southeast Michigan's high-tech industry a leader in the nation in his State of the County address. Shortly thereafter, 44 organizations joined to create a strategic plan for the growth of the cluster, and by 2004, the organization established its headquarters in Automation Alley Technology Park-Troy. Currently, there are more than 950 members. The rapid advancement that Automation Alley has made is due in part to its committed members and conscientious planning, but also due to a federal grant they received from the U.S. Department of Commerce in 2001. The funding enabled the organization to aid small businesses, create a technology business accelerator program, and establish a forum to discuss emerging technology.

Additionally, Automation Alley has cooperated with the National Automotive Center (NAC) to great a Cooperative Research and Development Agreement (CRADA). The research lab is Michigan's only federal research lab, and the NAC office - at Automation Alley's headquarters - provides entrepreneurs to collaborate with other institutions, including government partners. Universities in the area have held a particularly significant role in advancing the cluster. In fact, research and development spending by Automation Alley universities topped \$1 billion in 2006 for the fourth year running, growing from \$646 million in 1998 to over \$1.04 billion in 2006. The forward thinking organization continues to strive for quick progress. By 2010, Automation Alley seeks to be known internationally as "one of the major integrators of business, government and academia to catalyze growth and expansion of the technology-based global economy in Southeast Michigan."



Automation Alley representatives receiving the E Award. From left to right: Oakland County Executive L. Brooks Patterson, President George Bush, Automation Alley Executive Director Ken Rogers and Congressman Joe Knollenberg.



"The average wage in the technology industry increased in Automation Alley, the state, and the nation from 2005 to 2006, and wages in Automation Alley remain well above average levels. For 2006, the average technology industry wage in Automation Alley was \$70,311 (a 1.8 percent increase over 2005). The state level was \$65,370, and the national level was \$65,892."

"To date, 22 companies from across Southeast Michigan have received seed funding totaling more than \$3.6 million. Also, more than 450 technology start-up companies have received entrepreneurial support, ranging from business plan assistance to referrals and mentoring."

"Automation Alley has assisted in creating nearly 150 new jobs."

CITATIONS:

<http://www.automationalley.com/autoalley/Automation+Alley>

Contact Automation Alley at (800) 427-5100 or info@automationalley.com

Life Sciences Industry Cluster

LifeScience Alley

MINNESOTA

With over 600 organizations employing nearly 250,000 people in Minnesota's life sciences industry cluster, it is not surprising that health care represents the largest segment of the Minnesota economy and employment. Lead by



LifeScience Alley™

LifeScience Alley, the cluster capitalizes on the rich resources of the Twin Cities area - including the University of Minnesota and the Mayo Clinic - and its strength comes from the broad range of member organizations in the cluster: medical device and equipment manufacturers, agricultural and industrial bioscience organizations, pharmaceutical companies, health plans, insurers, hospitals and clinics, education and research institutions, government agencies and trade organizations, and a large variety of healthcare services and consulting companies.

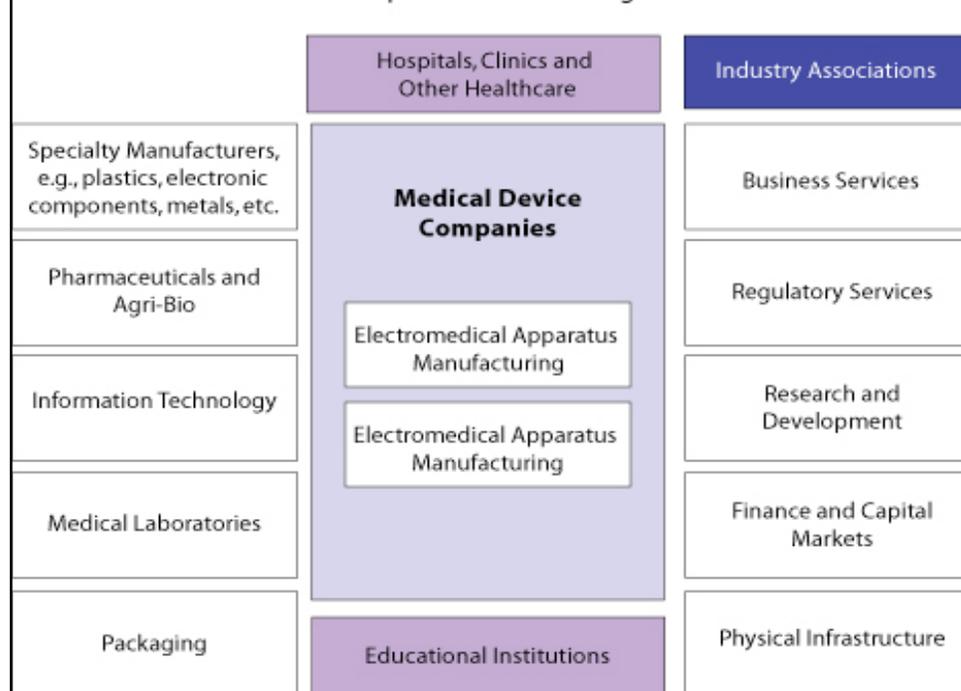
Minnesota's life sciences industry employs more than 50,000 people with average annual salaries between \$65,000 and \$70,000. The industry also grows at a rate of 7 percent to 9 percent a year.

The 350 mile stretch from Rochester, Minnesota through Minneapolis and St. Paul has traditionally been known as Medical Alley, encompassing the life science industry cluster. However, with the advances that the cluster has made, the industry cluster is expanding beyond state and national borders, where thousands more are employed through membership organizations.

LifeScience Alley's strength comes from the merging of two biotechnology non-profits in 2005: Medical Alley and MN-BIO. The former was founded in 1984 and was a trade association intended to support Minnesota's health care industry by focusing on legislative issues, research, education, and investment in Minnesota's healthcare sector. MNBIO, the state chapter of national Biotechnology Industry Organizations, was founded in 1991 as trade a association to represent the biotechnology industry in Minnesota. Drawing on the strengths of the two non-profits and all of its member companies and institutions, LifeScience Alley has made its presence nationally: Minnesota recently was recognized by the U.S. Department of Health and Human Services in Washington, D.C., as a hot spot for the growth of medicine. Alley Institute, an affiliate of LifeScience Alley, brings together the member organizations to address public health concerns and industry challenges. The Institute primarily implements education, workforce development, and research programs that seek, for example, to attract more students to pursue health care careers, to improve end-of-life care, to conduct reports on the effectiveness of different types of health care coverage.

Medical Device Industry Cluster Map

Examples of select linkages



Within the Life-Science Alley cluster, Minnesota's medtech cluster ranks second or third in size in the U.S. and is home to over 500 FDA-registered medical technology manufacturers.

With the growth in business and employment that LifeScience Alley has been able to attract to the state, Governor Tim Pawlenty named December 8-12, 2008 as "Life Science Week" in Minnesota, in order to highlight the importance of the industry to the state.

"The 10 largest life science firms in Minnesota generate over \$53 billion in revenue a year."

"Minnesota ranks as one of the top states in the nation in filing patent applications and is highly rated for its educated workforce and entrepreneurship."

"The state is a leader in medical devices. Per capita, Minnesota is number one, and second in dollar terms overall (behind only California)."

CITATIONS:

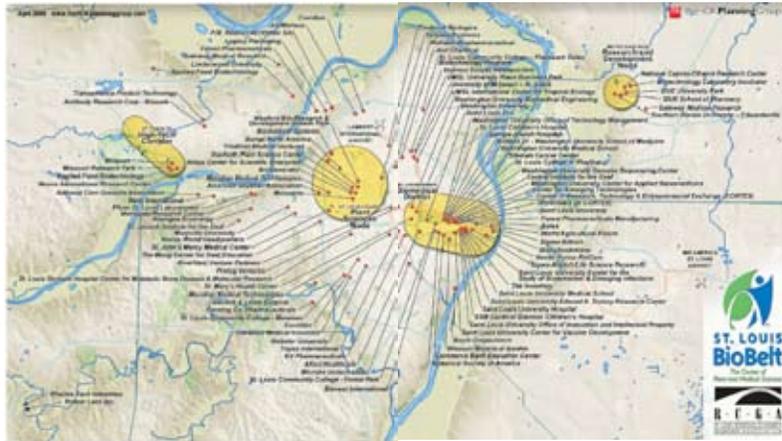
<https://www.lifesciencealley.org>; <http://www.mbbnet.umn.edu/associations/lalley.html>; "Courting the Biosciences Industry" Enterprise Minnesota Magazine, May 2008 <http://www.enterpriseminnesota.org/Magazine-eNewsletter/Enterprise-Minnesota-Magazine/2008-May/Courting-the-Biosciences-Industry.aspx>; <http://www.deed.state.mn.us/lmi/publications/trends/1008/medical.htm>

Plant and Medical Sciences Industry Cluster

St. Louis BioBelt: the Center for Plant and Medical Sciences

MISSOURI

Providing employment to over 90,000 people, the plant and medical sciences cluster of St. Louis's Life Science cluster consists of nearly 400 medical sciences enterprises, four major universities, and four additional research facilities that are engaged in the development and production of medicines, agricultural chemicals, organic chemical manufacturing, medical equipment manufacturing, and research and



St. Louis Region Plant and Medical Sciences Research and Development Nodes

development. The cluster is home to some of the nation's plant and medical sciences most significant actors including, Washington University St. Louis-School of Medicine, Saint Louis University School of Medicine, Monsanto Co., Sigma-Aldrich, one of Pfizer's research centers, the Missouri Botanical Garden, Stereotaxis, Kereos, Divergence, Orion Genomics, and the Donald Danforth Plant Science Center.

The largest Life Science-employing areas are located mainly in the St. Louis and Kansas City metro areas and Boone and Greene counties. And the highest growth areas include the I-70 corridor, the Ozarks region, the southeast, the northeast and the southwest. Areas with high cluster concentrations include Holt, Audrain, Pike, Marion, and Buchanan counties and St. Louis. Several years ago,

Plant and Medical Sciences Subsectors	Employment	Number of Firms
Pharmaceutical and Medicine Manufacturing	3,773	48
Pesticide, Fertilizer and Other Agricultural Chemical Manufacturing	359	19
Basic Organic Chemical Manufacturing (excluding petroleum products)	2,219	21
Surgical and Medical Instrument Manufacturing	3,304	159
Scientific Research and Development Services	6,994	138
Total	16,649	385

Source: US Bureau of Labor Statistics "Quarterly Census of Employment and Wages", 2006.

an investigation was conducted to examine St. Louis's regional economy and identify the industries with the most potential for growth. Among the five industries identified was the plant and life sciences industry. Thus, on the recommendation of the Battelle Memorial Institute, a private nonprofit and applied science and technology development company, and with support from the Louis Regional Chamber and Growth Association (RCGA), St. Louis's BioBelt's Center of Plant and Medical Sciences was formed in 2000. The St. Louis BioBelt's Center of Plant and Medical Sciences supports life sciences education, works to attract venture capital and government research funding to St. Louis, and facilitates industry networking. The Battelle Memorial Institute even asserted that St. Louis could be number one in the world in plant sciences, and among the top tier in the life sciences nationwide. The strength and potential of this cluster, and as a result of the organized collaborative effort to expand it, is making St. Louis more and more competitive in the plant and life sciences industry.

"St. Louis has made more progress in its implementation of the plant and medical sciences strategy than any region of the country, and is well on the road to becoming the leading center for plant sciences and a major center for the life sciences."

-- Battelle Memorial Institute Report, 2005.



"Focusing our efforts on industry clusters, where our region has comparative advantages, is a powerful strategy for creating regional wealth," noted Chairman of the Greater St. Louis Economic Development Council Joe Hasten.

Life Sciences

Employment Statistics:

Number of Businesses:

1,051

Number of Jobs:

32,880

Percent of total Missouri

Jobs: 1.4%

Average Annual Wage:

\$72,133

Total change in jobs

2002-2007: +5,911

CITATIONS: <http://www.gotostlouis.org/x1734.xml>

<http://www.missouripartnership.com/industry-clusters/life-sciences.aspx>

www.stlcommercemagazine.com

Plant and Medical Sciences Industry Profile, St. Louis Regional Chamber & Growth Association, April 2008.

Renewable Energy Industry Cluster

New Mexico Partnership: Renewable Energy

NEW MEXICO

With New Mexico Governor Bill Richardson having proclaimed New Mexico as the “Renewable Energy State,” it is clear that the renewable energy industry is a priority for New Mexico. The cluster consists of over 20 renewable energy companies located throughout the state, including those that promote, wind farms, solar farms, biomass and geothermal plants. Collaborating with these companies are various New Mexico research institutions and universities including: Los Alamos National Laboratories, Sandia National Laboratories, The Southwest Technology Development Institute within New Mexico State University, University of New Mexico, New Mexico Institute of Mining and Technology, and San Juan College. While the majority of the cluster members are based in Albuquerque, the cluster is expanding with a few member organizations in Rio Rancho, Santa Fe, and Tijeras.

In 2004, New Mexico received \$40.4 million from the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy for a variety of state and federal programs relating to renewable energy development. In addition to the research institutes and universities listed above, the cluster includes the following key renewable energy companies: Advent Solar, whose products are based on an advanced proprietary solar cell design that Advent licensed exclusively from Sandia National Labs; Direct Power & Water Corporation, manufacturer of photovoltaic module mounting systems, hybrid power systems, solar



Solar Panels

outdoor lighting and solar water pumps; EMCORE, manufacturer of photovoltaic cells and multifunction compound semiconductor solar cells; Energy Related Devices, fuel and solar cell technologies; Positive Energy, design and installation of custom renewable energy systems; Public Service Company of New Mexico, Energy generation including wind-generated power; Spire Solar Corporation, Solar panel manufacturer; and more. The state of New Mexico has supported the industry by providing a number of tax incentives for renewable energy companies to locate in New Mexico.



Los Alamos National Laboratory, NM

Since its inception in 2003, the New Mexico Partnership and the New Mexico Economic Development Partnership have

created over 11,000 jobs in New Mexico. Seeking to expand the industry and support business and employment growth in the state, they not only support the renewable energy industry, but they also assist the aerospace, film, food processing, manufacturing, mauala suppliers, and technology industries.

For more than 25 years, New Mexico has led the world in hydrogen and fuel cell research and development. The New Mexico Economic Development Partnership Economic Development Partnership sponsored the creation of the Hydrogen Technology Partnership, which is now managed by the Regional Development Corporation in Northern New Mexico, <http://www.rdcnm.org/>. The initiative connects one cluster to another across the state; uniting the alliance of industry, academia, and government leaders envisioning a New Mexico that uses its research and resources to reduce the nation’s dependency on imported oil.

“Locally grown biobased cluster company Sacred Power, Inc. more than doubled their employment and increased their revenues between 2004-2007.”

According to Scientists at the National Renewable Energy Lab in Boulder, CO, “New Mexico ranked 2nd in the nation for solar energy potential.”

“New Mexico ranks first in the 50 states in the number of PhD scientists and engineers as a percentage of the workforce.”

“New Mexico is a world leader in hydrogen fuel-cell research and development.”

CITATIONS: <http://www.nmpartnership.com/renewable-energy/>
http://www.nmsi-research.com/ee/ee_1_7_2.htm

Bioscience Industry Cluster

New York City BioScience Initiative

NEW YORK

Employing more than 110,000, the New York Metro Area has the largest bioscience workforce in the country. With the world's largest concentration of academic institutions with nine major academic medical centers including Columbia, Cornell, NYU and The Rockefeller University and over 125 bioscience companies in the area, it is not surprising that New York accounts for 5 percent or more of national employment in three bioscience subsectors—drugs and pharmaceuticals; research, testing, and medical laboratories; and medical devices and equipment.

The New York Bioscience Initiative is a partnership of area research institutions, business leaders, the investment community, and the City and State of New York. The goal is to accelerate the development of a vibrant and substantive bioscience industry cluster in the New York City metropolitan region. A key priority of the Bioscience Initiative is the development of a network of affordable, state-of-the-art facilities to accommodate commercial bioscience businesses and related research activities throughout New York City and the surrounding region.



The New York City metropolitan area Bioscience industry cluster is defined as the five boroughs of New York City, Westchester County and Long Island.

The New York City business community committed to invest \$10 million in capital to NYC Bioscience Initiative's new research and development campus in Manhattan called, East River Science Park. (ERSP). In addition to providing space for New York-based bioscience businesses looking to expand their current R&D efforts, the project is expected to create more than 2,000 permanent jobs and 4,000 construction jobs by 2015.



East River Science Park

"The development of the East River Science Park will help us accomplish the goal of transforming New York City, already a leading center of bioscience research, into one of the nation's primary commercial bioscience clusters as well. This state-of-the-art facility will allow us to take advantage of our enormous scientific base and world-class research institutions to attract both start-up firms and established bioscience companies to New York City." Mayor Bloomberg

CITATIONS:

<http://www.nycbiotech.org/overview.html>;
<http://www.empire.state.ny.us/>; <http://www.nystar.state.ny.us>;
<http://www.nyba.org>;
"Mayor Bloomberg Announces Developer to Build Largest Biotech Campus in NYC,"
http://www.nycp.org/pressReleases/2005/pr_081005_ERSP.html

Contact Maria Gotsch of New York City Investment Fund at 212-493-7537

Advanced Materials Industry Cluster

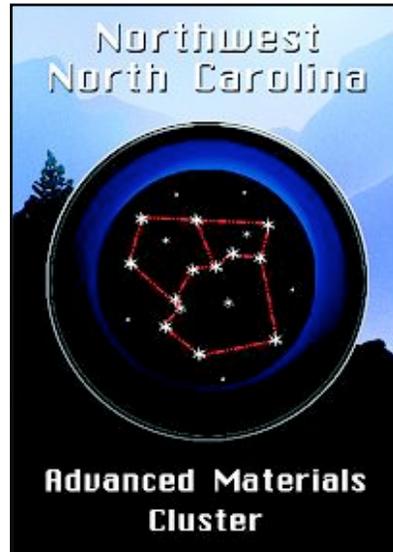
Northwest North Carolina Advanced Materials Cluster

NORTH CAROLINA

The bulk of Northwest North Carolina jobs are found in the manufacturing sector, which boasted over 40% of regional employment and nearly 78,000 jobs, but the industry has declined in recent years, and the Northwest North Carolina Advanced Materials Cluster is seeking to transition the industry towards an Advanced Materials Industry Cluster. In other words, the intention is to change from reliance on less-skilled labor-driven industries such as textiles to higher-skilled higher-technology industries such as chemicals. The cluster includes manufacturers and suppliers, wholesalers and

distributors, researchers, workforce training, community colleges, and financial and other support services.

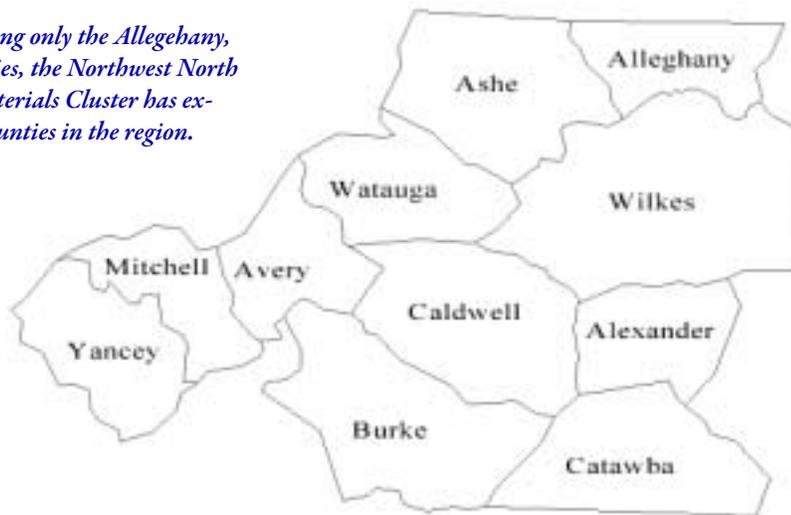
As a rural based high-tech industry cluster, the unique Northwest North Carolina Advanced Materials Cluster, Inc. (NAMCI) is an economic development, public/private partnership focused on research, education, job growth and infrastructure for driving economic competitiveness within 11 counties in Northwest North Carolina. It emerged in 2004, the regions leading manufacturer, Martin Marietta, agreed to lead the initiative with funding from a Duke Endowment economic recovery program for rural communities. Though initially including only the Alleghany, Ashe, and Wilkes counties, the Northwest North Carolina Advanced Materials Cluster has expanded to include 11 counties in the region. Current collaborators include local corporations, universities, and government organizations including: AdvantageWest Economic Develop-



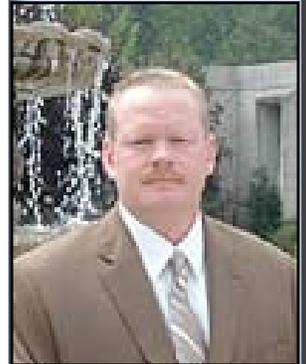
ment Region, North Carolina Rural Center, Wilkes Community College, Blue Ridge Electric, the U.S. Economic Development Administration and more.

With funding from the North Carolina Rural Economic Development Center, and collaboration with Wilkes Community College, Northwest North Carolina Advanced Materials Cluster invested in the development of an Advanced Materials Center. Completed in 2004, the Center provides training and degrees specific to companies involved in the advanced materials industry in the region.

Though initially including only the Alleghany, Ashe, and Wilkes counties, the Northwest North Carolina Advanced Materials Cluster has expanded to include 11 counties in the region.



Counties of the Northwest North Carolina Advanced Materials Cluster



John Hauser on Northwest North Carolina Advanced Materials Cluster's Advanced Materials Center: "Part of the idea behind developing the cluster is to build a critical mass of workers, and that means stabilizing our existing workforce and offering this training as a means of attracting companies that we believe will bring good paying jobs and some prosperity to this region."

CITATIONS:

Northwest North Carolina Cluster Initiative: Advanced Materials Cluster Factbook; <http://www.advanced-materialsnc.org>; <http://www.ncruralcenter.org/stories/nncamc.asp>

Contact John Hauser, Executive Director of NAMCI at 336-838-6149

Manufacturing Industry Cluster

Westside Industrial Retention and Expansion Network (WIRE-Net)

OHIO



John P. Colm, President and Executive Director, WIRE-Net:

"We believe our region will be successful when manufacturing companies are supported by:

- Investment in infrastructure and site redevelopment in our industrial corridors;*
- Public officials who understand manufacturing and make it easier for manufacturing leaders to invest and do business here; and*
- Effective adult and youth education and training initiatives that target manufacturing careers where skill shortages currently exist."*

Northeast Ohio is Ohio's manufacturing home. In 2007, the industry contributed \$36 billion in gross product to Ohio's economy, making it Northeast Ohio's largest economic sector in terms of economic output and employment. In Cleveland alone, there are 1,000 manufacturing firms employing approximately 27,000 Ohioans. In addition, the manufacturing industry stimulates related industries in the region, with over 900 metals-related firms, employing more than 50,000 workers, and a combined annual payroll of \$2 billion.

Leading Cleveland and the surrounding area's manufacturing industry is Westside Industrial Retention and Expansion Network (WIRE-Net), an organization that seeks to stimulate the region's manufacturing industry, create healthy communities, and encourage overall economic growth in Northeast Ohio. WIRE-Net began in 1988 with various industry and related industry leaders from the Westside Institute of Technology (now Vatterot College), Cudell Improvement, Stockyard Area Development, Detroit Shoreway and the West Boulevard Neighborhood Association. They found that 60% of the community's jobs were tied to the 400 manufacturing firms in the area, and they needed to take action as manufacturing plants were closing and many jobs in were being lost – in the industry itself and in the spin-off industries. Thus, in an attempt to save businesses and jobs in the region, they organized Cleveland's Industrial Retention Initiative (CIRI) to support manufacturing. Since its inception, WIRE-Net has focused on various initiatives – from manufacturing innovation and business assistance, workforce development, redevelopment, to advocacy. They have are supported by the City of Cleveland, the State of Ohio, the Ohio Department of Development, and other state and federal

agencies; in total 180 manufacturing and related members – including universities and communities college – create WIRE-Net. Their collaboration and leadership has not only helped save Northeast Ohio's manufacturing industry, but has helped it expand. Twenty years since WIRE-Net began, manufacturing firms grew from 400 to 1,000. And as of 2007, WIRE-Net's served over 750 manufacturing firms, impacting over 11,000 employees.

WIRE-Net has been particularly successful in its workforce development programs. WIRE-Net has three youth development programs, exposing teens to the manufacturing industry and providing funding to manufacturing related math programs; an adult program, providing training courses for entry/level manufacturing positions; and it also provides a recruiting service and employee training and development. In addition to workforce development, WIRE-Net is looking to innovate the industry. In 2008, the Ohio Department of Development awarded an \$850,000 grant to WIRE-Net, to expand the supply chain for wind power in Ohio.

	2005	2006	2007
Manufacturing Companies Served	333	566	765
Individuals Served	766	1209	1609



"In 2007 the average wage of individuals obtaining employment with WIRE-Net's assistance was \$12.79, an increase of over 25% from the prior 2 years."

"Through intensive outreach efforts, WIRE-Net's staff worked with over 750 manufacturing firms, including their member companies, of which are manufacturing businesses. WIRE-Net's members employ over 10,000 employees and the majority of organizations have fewer than 20 employees."

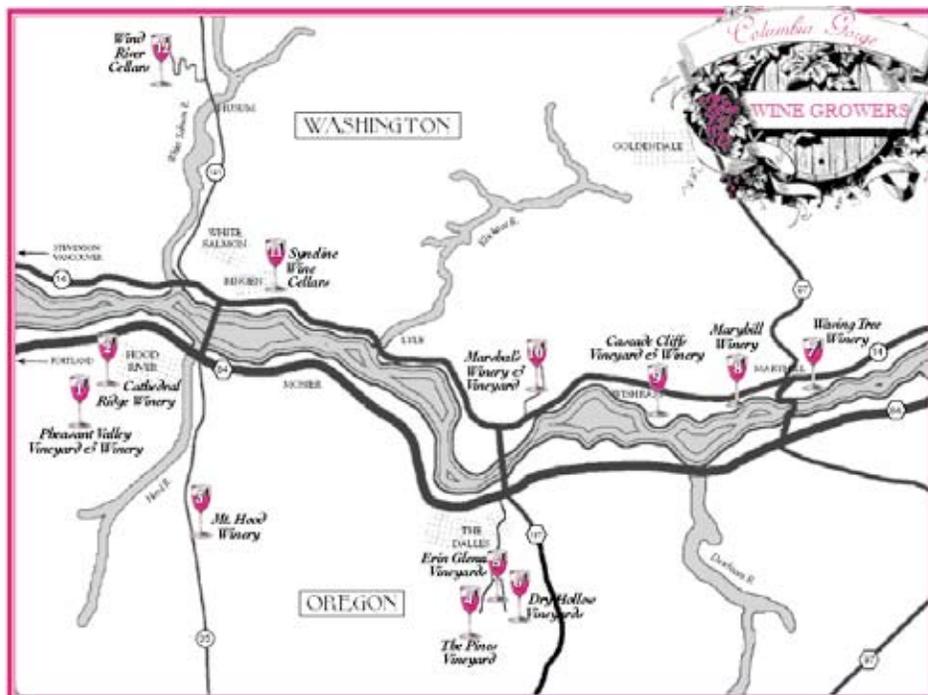
CITATIONS:
<http://www.wire-net.org/>; WIRE-Net Newsletter, "Manufacturing Matters," Winter 2008; ClevelandPlusBusiness, Team Northeast Ohio Newsletter, May 30, 2008. <http://teamneonews.org/Portal/content/Newsletters/2008/May/TeamNEONews-May20081>.

Wine Industry Cluster

Oregon Wine

OREGON

In 2002, the Columbia Gorge Winegrowers Association -- made up of winemakers and grape growers -- organized to increase the recognition of wines produced in the area. In July 2004 the Columbia Gorge became a federally-recognized appellation, and the group began accepting associate members (i.e. restaurants, bed and breakfasts, etc.) in 2005. There currently are 60+ participants in the Oregon Wine industry cluster -- including members of the Columbia Gorge Winegrowers Association, <http://www.columbiagorgewine.com/winery.htm> -- and various other vineyards, restaurants, bed and breakfasts, marketers, accountants, tourism, and other wine related businesses. They collectively strive to create a locally owned, regionally cooperative and economically viable wine industry that: adds value to agriculture, creates jobs, promotes Gorge-wide tourism and maintains the quality of life of the Gorge. Columbia Gorge Winegrowers Association's principal vineyards include: Cascade Cliffs Vineyard & Winery, Cathedral Ridge Winery, Cor Cellars, Dry Hollow Vineyards, Erin Glenn Vineyards, Bad Seed Cider House, Maryhill Winery, Marshal's Winery & Vineyard, Mt. Hood Winery, Pheasant Valley Vineyard & Winery, Phelps Creek Winery, Syncline Wine Cellars, The Pines 1852, Waving Tree Vineyards & Winery, Wind River Cellars,



Celilo Vineyards, Underwood Mountain Vineyards, and the Wy'East Vineyard. The Columbia Gorge Winegrowers Association is sponsored by the Mid-Columbia Economic Development District, and is part of Oregon's Cluster Network. The Oregon wine cluster, and the Columbia Gorge Winegrowers Association, are part of Oregon's Cluster Network, which began in 2005 as a joint effort between The Oregon Busi-

The cluster encompasses the Mid-Columbia Region: 2 counties in Washington, Klickitat and Skamania, and 3 counties in Oregon, Sherman, Wasco, and Hood River – all of which border the Columbia River.

ness Plan, the Governor's Office, and the Oregon Economic and Community Development Department. Oregon's Cluster Network seeks to identify Oregon's mature, emerging, and potential industry clusters and assist cluster participants as they work to accelerate innovation and the growth of their industries. There are nearly 20 clusters as part of Oregon's Cluster Network; and, the Columbia Gorge Winegrowers Association -- in addition to the Agri-Business Council of Oregon, the Farmer-Chef & Fisherman Chef Connection, and the Artisan Cheesemakers clusters -- make up the Columbia Agriculture, Food Processing, and Nursery Cluster.

Oregon wine cluster's top initiatives include simplifying and streamlining regulation and permitting, improving healthcare and controlling healthcare costs, and, in collaboration with Washington, expanding Oregon's capacity for economic innovation. Future areas the cluster intends to address include: technical training—partnering with community colleges and universities for enology and viticulture, business costs for vineyards and wineries, regulatory environment, infrastructure, entrepreneurial vitality, and OR-WA bi-state barriers. They also seek to expand toward water policy and energy initiatives as well.

CITATIONS: <http://www.mcedd.org/activities/clusters.htm>; <http://www.oregon-clusters.org/clusters/agriculture.html>; <http://www.gorgesearch.com/vineyards.htm>

Contact Mid-Columbia Economic Development District's Thayne Cockrum at thayne@mcedd.org

Plastic Industry Cluster *Plastics SourceNet*

PENNSYLVANIA

In the Pennsylvania plastics industry, approximately 800 employers provide 60,000 jobs and \$19.4 billion in shipments in the Commonwealth. Pennsylvania ranks behind only California, Texas and Ohio in plastics production. Plastics SourceNet, a network of consultants, universities, colleges and other independent resources involved in the plastics manufacturing industry, is a full service resource supporting Pennsylvania's manufacturing competitiveness in the plastics industry.

Established and financed by a grant from the Commonwealth of Pennsylvania and the Department of Community & Economic Development, Plastics SourceNet is located in Williamsport, at Pennsylvania College of Technology. The mission of Plastics SourceNet is simple: To serve the technology and training needs of Pennsylvania's plastics manufacturers and entrepreneurs. Plastics SourceNet works in partnership with companies to optimize manufacturing processes, decrease time to market, reduce costs, increase productivity, enhance product development and innovation, provide training



PLASTICS SOURCENET
Pennsylvania's Plastics Network

to upgrade workforce skills and efficiencies, and recruit qualified personnel. Plastics SourceNet has partnered with the Industrial Resource Centers, Keystone Innovation Zones, and The Ben Franklin Technology Partners.

Collaborating with Plastics SourceNet in 2005, the Pennsylvania's Department of Labor & Industry and its



Workforce Investment Boards received a multi-year grant from the U.S. Department of Labor to improve the competitiveness of the Commonwealth's plastics industry. The grant supports the statewide cluster initiative by providing funding to link existing and emerging regional initiatives into a broader statewide network. Partners in the cluster initiative include the Pennsylvania Workforce Investment Board (WIB), Penn State University, Pennsylvania College of Technology, a consortium of local WIBs, and the statewide system of Industrial Resource Centers (IRCs), and Ben Franklin Technology Partners.

As part of the Pennsylvania Plastics Initiative, the state piloted three groups, totaling 19 companies in an international plastics standards training program known as Global Standards for Plastics Certification (GSPC). The Plastics Manufacturing Center (PMC) at Pennsylvania College of Technology partnered with A. Routsis Associates and Mid-Atlantic Plastics Partners, Inc. (MAPP) to successfully implement the training program in the state, the second state to launch GSPC. During the two-phased pilot program, data was collected both qualitatively and quantitatively, and companies reported improvements in many areas including throughput efficiency, quality measures, customer service measures, reduction in scrap, and increases in the ability to recycle materials. Manager of participating company, Rexam, noted that as a result of the GSPC, "Our safety record has gone from the worst in the division to first in one year."

Based upon forecasts from the Pennsylvania REMI Policy Insight Model, 2004-2017 growth in labor productivity in the Pennsylvania plastics manufacturing industry is estimated to be 25% higher than for all of Pennsylvania manufacturing and 41% higher than for the entire Pennsylvania economy.

"This initiative, and partnerships it has created, are designed to serve as a statewide template for the integration of workforce, economic development and education to support other key competitive industry clusters in the commonwealth," said Jack Gido, director of Penn State's Office of Economic and Workforce Development.

CITATIONS:

<http://www.plastics-sourcenet.org/> http://remaxbeta.com/images/states/PA_Map.gif

Contact Mr. Frank Sorg, Pennsylvania Plastics Initiative Director, at email psn@pct.edu or phone (717) 772-4966.

Manufacturing Industry Cluster

Rhode Island Manufacturing Extension Service - RIMES

RHODE ISLAND

Manufacturing in Rhode Island supports 51,000 jobs across 2,000 firms that include everything from traditional metal working to ultra modern bio-manufacturing. RIMES, Rhode Island Manufacturing Extension Service, is a non-profit organization which provides complete manufacturing solutions to Rhode Island's small and medium-size manufacturers in the following types of manufacturing: Electronics, Textiles, Biotechnology, Plastic Products, Printing Service/ Equipment, Metal Casting/ Forming, Contract Manufacturing, Machinery/ Equipment, Jewelry, Packaging, Boat Building/ Marine Equipment, Medical Device Manufacturing, Food Production.



RIMES began in 1994, when a group of RI Manufacturers, recognizing that they faced many of the same business challenges, provided start-up funds and presented the Manufacturing Extension Partnership (MEP) service model to the Governor, the General Assembly, Representatives of Congress, and the University of Rhode Island (URI).

Based at the Rhode Island Economic Development Corporation headquarters at the American Locomotive Works Development complex in Providence, RIMES works with an average of 60 companies per year, receives no state funds and is reliant on federal dollars and client fees.

They next developed a strategic plan and applied for federal funding. The state of Rhode Island received funding for the plan in 1996, and RIMES established operations in June 1996 at the University of Rhode Island.

RIMES has partnered with National Institute of Standards and Technologies Manufacturing Extension Partnership (NIST MEP), National Institute of Standards and Technologies (NIST), Rhode Island Economic Development Corporation (RIEDC), Every Company Counts, Rhode Island's Small Business Advantage, John H. Chafee Center for International Business, Bring Us Your Business, We'll Give You the World, Northern Rhode Island Chamber of Commerce, North Kingstown Chamber of Commerce, Rhode Island Department of Labor and Training, and Rhode Island Manufacturers Association.

In June 2007, the R.I. Economic Development Corporation and Rhode Island Manufacturing Extension Service announced that, as part of "a new alliance aimed at strengthening the state's manufacturing sector," RIMES joined the Rhode Island Economic Development Corporation in the agency's new headquarters on Valley Street.

Rhode Island Manufacturing Extension Services scorecard for 2007 and 2008 fiscal years:

2007	2008
Jobs created: 129	Jobs created: 25
Jobs retained: 206	Jobs retained: 137
Increased sales: \$2.75 million	Increased sales: \$2.49 million
Cost savings: \$710,000	Cost savings: \$4.4 million
Investments in manufacturing: \$8.39 million	Investments in manufacturing: \$3.69 million

SOURCES: RIMES AND NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

"Since its inception in 1996, RIMES has assisted over 600 companies. In 2007, Rhode Island small- and mid-sized manufacturers that RIMES worked with increased sales by \$2,497,439, retained sales of \$5,392,439 and achieved a cost savings of \$4,427,975."

"In 2007, according to the latest federal figures supplied by DLT, 50,810 workers at 2,028 manufacturing sites in the state were paid a total of \$2,343,272,034, an average annual wage of \$46,118. The average annual wage for the overall private sector was \$39,827."

CITATIONS:
"RIMES earning high marks for aiding Manufacturers," Denise Perreault, Providence Business News, November 10, 2008; "Manufacturing has a new look in Rhode Island," Denise Perreault, Providence Business News, July 21, 2008; <http://www.rimes.org>

Clean Energy Industry Cluster

ATI Clean Energy Incubator (CEI)

TEXAS

In 2007, the Texas capital, which is home to more than 50 clean-tech companies, was ranked as having the most friendly conditions in the country for cleantech companies by SustainLane, an independent research firm in San Francisco. And since its inception in 2001, the Austin Technology Institute's Clean Energy Incubator (CEI) has helped 150 Texas companies receive more than \$780 million from investors. Led



by the University of Texas at Austin's Austin Technology Institute (ATI) and the National Renewable Energy Laboratory (NREL), CEI consists of seven companies involved in incubating everything from internet-controlled irrigation to wind and geothermal energy technologies. Together they create the Austin-based cluster that promotes the clean energy industry in Texas' and they have also received support from city owned utility Austin Energy and the state of Texas.

Launched as part of the Austin Technology Incubator (ATI), CEI provides the resources and facilities necessary for start-ups to attract funding, aggressively compete in the free market, and create jobs in the Austin area. The ATI Clean Energy Incubator is supported by the Texas State Energy Conservation Office and has previously received funding from the U.S. Department of Energy (DOE). In 2006, CEI secured funding from a collaborative effort with the City of Austin and Austin Energy, and it is also a part of the National Alliance of Clean Energy Business Incubators. Its current partners include the following institutions: Austin Energy, Clean Energy Alliance, CleanTX Forum, Dow Jones & Company, Korean Electric Power Corporation (KEPCO), National Renewable Energy Laboratory, and the State Energy Conservation Organization (SECO). CEI's portfolio includes the following companies: AccuWater, ActaCell, Atonometrics, Inc., GeoTek Energy, Solar Array Ventures, and affiliate company, Xtreme Power.

Founded in 1989, ATI is a nonprofit organization that harnesses local business, government and academic resources to provide strategic counsel, operational guidance, and infrastructure support to its member companies to help them transition from early stage ventures to successful technology businesses. ATI is a program of the IC² Institute at the University of Texas at Austin and is supported by the University of Texas, the City of Austin, and the Austin community. The incubator works with a variety of investors, a network of professional service providers, outside industry experts, and others. Between its initiatives in the Bioscience, Green Technology, Information Technology, and Wireless

industries, it has hosted technology ventures with interests and business connections in Canada, Brazil, Japan, Australia, England, Germany, China, and Israel. ATI's achievements have prompted several mayors' councils nationwide to send representatives to its facilities to learn more about how to generate business development and revitalize ailing municipal economies.

Partnering with Austin Energy, CEI hosted the inaugural Clean Energy Venture Summit in May, 2007. The Summit promoted "The Utility of the Future" by connecting thought leaders, clean energy entrepreneurs, investors, industry experts and government officials through keynote addresses, discussion panels and insider looks at emerging technologies. 20 early-stage clean energy companies gave presentations introducing their business plans to prospective investors, private and municipal utilities, and potential partners. The Clean Energy Venture Summit has been called "The Most Blogged Cleantech Conference Ever," and our highlights included keynote speeches from James Woolsey – Former CIA Director, and Dick Gephardt – CEO of Gephardt Group.



U.S. Rep. Lloyd Doggett of Austin, Texas on the \$1 million grant given to CEI and the National Alliance of Clean Energy Business in 2003, "This is an excellent example of leveraging state and private support with federal funding to advance clean energy initiatives, which will reduce our dependence on foreign oil."

"We want to create a living laboratory for new technologies," said CEI Director Reed Benet.

"We want companies that can then expand to the cities of Texas and then to the nation."

CITATIONS:

<http://www.ic2.org/main.php?a=2&s=0>;
http://www.teamca.org/news_archive.php?op=view&id=67;
"Austin Incubator among clean energy centers to receive \$1 million in federal funding." University of Texas at Austin . News. April 7, 2003. http://www.utexas.edu/news/2003/04/07/nr_icc/;
"ATI hires industry vet to lead division," Christopher Calnan, Austin Business Journal, December 5, 2008. <http://austin.bizjournals.com/austin/stories/2008/12/08/story6>; <http://www.austin-chamber.org/Dobusiness/TheAustinAdvantage/Energy.html>

Life Sciences Industry Cluster

Utah Life Sciences



Currently, there are over 4,300 life sciences and information technology companies throughout Utah; and according to the Utah Department of Workforce Services in 2006, there were about 26,800 jobs in life sciences in the state. Thus, it is not surprising that Utah's life science industry is supported by the Governor's Office of Economic Development and their Utah's Economic Cluster Initiative. With over 250 life science companies, Utah's many education institutions, and various research institutions supporting the cluster, they strive to increase its competitiveness by collaborating to advance the industry and draw business to the area.

Utah's Life Sciences Cluster specifically consists of Utah State University, the University of Utah, the University of Southern Nevada (which recently expanded into Utah), the Utah College

of Applied Technology, Brigham Young University and the Salt Lake City Community College. The Utah Science Council Utah Science, Technology and Research Initiative (USTAR) and Utah's Technology Council (UTC) also make significant contributions to the cluster. With its strong research base, the Life Sciences cluster focuses on strengthening the following sectors within the cluster: personalized / predictive medicine, including genetics &

Jeff Nelson, President/CEO Nelson Laboratories, "Our decision to further expand our testing capabilities in Utah is based on our ability to access world class talent, as well as the important partnerships we have developed in the state. Additionally, we appreciate that the Governor's Office, UTC, BIO and EDCUtah have prioritized the growth of our industry through the development of policy that works to ensure that Utah companies can grow in the state and that our industry is recognized as one of the leading life sciences clusters in the nation."

biomarker development, pharma research & clinical services and neuroscience; medical devices & products; microbe biotechnology particularly environmental & agriculture technology & remediation; and cellular systems.

The collaborative efforts to expand the industry have been successful in drawing attention to the region. This fall, Nelson Laboratories, which offers business and research assistance in the medical device and pharmaceuticals industries, announced it would invest over .13 million to expand its facilities and purchase new equipment at its Salt Lake headquarters. The project will create more than 350 full-time positions with an average of 125% of the Salt Lake Country average wage.



Utah's Major Life Science Companies

"Life and physical scientists account for 45% of Utah's workforce compared to only 36% for the national workforce."

"Utah ranks 9th in the nation for its comprehensive inventory of science and technology assets, R&D capabilities and its entrepreneurial capacity and risk capital infrastructure."

"Utah ranks 8th nationally for academic R&D spending per \$1,000 of gross state product."

CITATIONS: "Clusters and Competitive-ness," by Karen Mills, Elisabeth Reynolds and Andrew Reamer, EDA America, Fall 2008 Issue. www.eda.gov/PDF/EDA_QuartMag_FALL_FINALV2.pdf; "Nelson Laboratories To Become Leader In The Life Sciences Industry," The Post Chronicle, November 14, 2008. <http://www.postchronicle.com/cgi-bin/artman/exec/view;www.EDCUtah.org;http://www.lcsc.edu/library/ILI/Classes/j0174992.jpg>