



Contacts:

Emily Mendell, National Venture Capital Association, 610-565-3904, emendell@nvca.org

Clare Chachere, PricewaterhouseCoopers, 512-867-8737, clare.chachere@us.pwc.com

Lisa Peterson, Porter Novelli for PricewaterhouseCoopers, 512-241-2233, lisa.peterson@porternovelli.com

FASTEST GROWING REGIONS FOR VENTURE CAPITAL INVESTMENT LIE OUTSIDE SILICON VALLEY

Venture Capitalists Finding Opportunities in “Unexpected” Pockets

New York, March 11, 2008 – While Silicon Valley and New England remain the country’s leading regions for venture capital investment, they are not the fastest growing, according to The MoneyTree Report by PricewaterhouseCoopers and the National Venture Capital Association (NVCA) based on data by Thomson Financial. In the last ten years, smaller pockets in non-traditional venture capital regions have enjoyed impressive growth in the number of companies funded each year. Included in this ranking are areas such as New Mexico and Pittsburgh, which have not had a strong venture capital presence in the past but have recently shown notable signs of growth. Additionally, the ranking included larger metropolitan areas such as Seattle, Los Angeles, and the Washington DC metro area, which have been quietly growing their venture base over the last ten years. None of these up-and-coming areas were included in the top five regions for total venture capital investing in 2007, but that could only be a matter of time, suggests Mark Heesen, president of the NVCA.

“Venture capital growth is extremely organic. Once a critical mass of companies is funded in a certain region, a new ecosystem will develop,” Heesen says. “It is very magnetic in the sense that start-ups breed innovative thinkers and entrepreneurs who, in turn, attract venture capitalists. For regions that don’t have a large, indigenous venture investor base, it is important to give outside VCs a reason to visit. These unexpected regions are making venture capitalists stand up and take notice.”

The analysis focused on the ten-year growth rates for regions across the country and ranked the fastest growing areas based on number of companies funded, excluding areas that had under \$100 million in investment in 2007.

	2007		1997		% Change	
	No. of Comp	Total Investment	No. of Comp	Total Investment	No. of Comp	Total Investment
New Mexico	21	128.26	3	27.03	650%	375%
Pittsburgh/Tristate	44	198.17	12	32.32	267%	513%
Seattle	132	1253.41	65	403.2	103%	211%
Los Angeles	124	1146.04	73	459.41	72%	155%
Washington DC Metroplex	180	1282.16	105	558.24	71%	130%

The following offers some insight and fast facts about each of these regions:

New Mexico at a Glance: 2007 Venture Investment

The state of New Mexico experienced significant venture capital investment growth in the last year, fueled largely by interest in clean technology and alternative energy. The area is part of the larger Southwest region that also has seen increased deal flow in the last several years.

"New Mexico has long been a world leader in its concentration of technology research and development - over \$6 billion in R&D spending in 2007 alone, spread across a dozen national laboratories, public research universities, corporate laboratories, and independent think tanks," said Trevor Loy, managing partner of Flywheel Ventures. "Much of that innovation is concentrated in sectors of growing interest to venture capital investors - such as energy, advanced materials, water treatment, optics, and high-performance computing. In parallel, policymakers in New Mexico have dramatically improved the business climate for entrepreneurship, including a particularly successful State Investment Council program that augments market-driven investments made by local and out-of-state venture investors. Coupled with the creative character of the 'Land of Enchantment' and its unique lifestyle advantages for entrepreneurs, the rapid growth of venture capital-funded entrepreneurship is a natural outcome."

Top industries: Clean Technology, Life Sciences, Semiconductors

Most Active Investors: Verge, Flywheel Ventures, EPIC Ventures

Stage of Investment: 52 percent of the companies were Seed/Early stage

Largest Investments: Advent Solar, MIOX Corporation, Aspen Avionics

Pittsburgh at a Glance: 2007 Venture Investment

Once a region that relied primarily on traditional industries such as steel, Pittsburgh has the opportunity to further develop its innovation economy through venture capital investment. Like many regions, Pittsburgh saw substantial increases in venture capital investment during the technology bubble, but has since been building sustainable growth in the area of life sciences and other scalable sectors.

According to Dean Miller, managing director at Novitas Capital, "We have completed six early stage investments in Pittsburgh in just the last three years across life sciences, clean technology and software. Several of these investments are based on technology spun-out of the local universities and medical centers. The academic and clinical powerhouses of the University of Pittsburgh ("PITT"), the University of Pittsburgh Medical Center ("UPMC") and Carnegie Mellon University ("CMU") produce significant amounts of primarily government-funded technology across multiple disciplines. CMU is a world leader in Computer Science and Robotics; UPMC is ranked nationally as one of the top medical centers in a host of clinical areas such as transplantation oncology and CNS; and PITT's research spans both biomedical and engineering fields in medical devices and drugs. Most importantly, these three entities work extremely well together and all serve as value-added partners for our companies."

Top industries: Life Sciences, Software, Clean Technology

Most Active Investors: Innovation Works, Draper Triangle, Pittsburgh Life Sciences Greenhouse, Novitas Capital

Stage of Investment: 66 percent of the companies are Seed/Early stage

Largest Investments: Millennium Pharmacy, Logical Therapeutics, BPL Global

Seattle at a Glance: 2007 Venture Investment

Seattle benefits from a strong bench of local venture capital firms that have embedded themselves in the start-up community. It does not rely on a single industry to carry investments. Rather, it is very diverse, investing in both traditional venture capital areas as well as cutting edge investment sectors such as biotechnology and clean technology.

“Venture investing in the Pacific Northwest is an even greater opportunity than when I started 25 years ago,” said Chad Waite, managing director at OVP Venture Partners. “One of the things that grows well here is the entrepreneurial spirit. That, combined with the resources and scale of some local, establishment technology giants, means the start-up scene continues to be vibrant year after year. I love being in the midst of a region I truly consider an epicenter of innovation, creativity, talent and productivity.”

Top industries: Software, Life Sciences, Media and Entertainment

Most Active Investors: Ignition Partners, Madrona Venture Capital, OVP

Stage of Investment: 42 percent of the companies were Seed/Early stage

Largest Investments: Imperium Renewables, Telecom Transport, Dexterra

Los Angeles at a Glance: 2007 Venture Investment

Los Angeles is one of the strongest regions in the country for media and entertainment companies. It offers a great deal of promise for innovative young companies operating at the intersection of telecommunications, Internet and consumer entertainment. It also has a great deal of activity in the alternative energy and clean technology spaces.

Steve Krausz, general partner at U.S. Venture Partners explains, "As technology has begun to transform media, entertainment and consumer trends, Southern California and Los Angeles, in particular, has become a center of innovation. Venture capital investment has increased to the region in response to this dramatic new opportunity to re-invent large existing industries. Los Angeles has a unique, creative workforce. When coupled with the state's favorable entrepreneurial and innovation policies which helped grow Northern California into the well known capital of U.S. venture activity we expect to see a continued flow of venture capital into the region."

Top industries: Media and Entertainment, Software, Clean Technology

Most Active Investors: Clearstone Venture Partners, US Venture Partners, Draper Fisher Jurvetson, Redpoint Ventures

Stage of Investment: 41 percent of the companies are Seed/Early stage

Largest Investments: Amp'd Mobile, Ceres, Vantage Media

Washington D.C. Metroplex at a Glance: 2007 Venture Investment

The Washington DC Metroplex region has many attributes that help foster a strong venture capital ecosystem, including a strong population of technologists and entrepreneurs, a group of indigenous venture capital firms, and clusters of innovations in areas such as Southern Maryland and Northern Virginia.

Much of the D.C. region's entrepreneurial culture is uniquely rooted in three main components of government-based activity, said Roger Novak, founding partner at Novak Biddle Venture

Partners. "First, the entrepreneurs bred by federal laboratories and agencies create opportunities for VCs who understand the nuances of building companies around talent and innovations spun out of a government lab. Second, VCs are increasingly drawn to local companies' ability to sell sophisticated technologies that address some of the government's and industries' toughest challenges. With D.C.-area venture-backed companies like Blackboard and AOL spawning new companies and, in some cases, new clusters, the region is likely to remain attractive for many years."

Top industries: Software, Life Sciences, Telecom

Most Active Investors: Novak Biddle Venture Partners, Columbia Capital, Grotech, New Enterprise Associates, Valhalla

Stage of Investment: 37 percent of the companies were Seed/Early stage

Largest Investments: Bravo Health, BillMeLater, Gridpoint

While these five regions represent the fastest growing, there are many other areas of the country that have enjoyed significant venture capital investment growth in the last ten years. In fact, 25 of the 50 states experienced double digit growth from 1997 to 2007.

"Silicon Valley and New England are well-known for their entrepreneurial spirit. However, VCs have been encouraged to look to other markets for talented individuals with great ideas and solid business plans, in part because the cost of doing business is less in these alternative markets," explained Tracy Lefteroff, global managing partner of PricewaterhouseCoopers venture capital practice. "Another reason VCs are likely drawn to these markets is the quality of talent coming out of prominent universities and corporations as well as the opportunities for academia and other large corporations in the region to spin out new companies. These factors provide ample investment opportunities as well as a capable employee base to staff those opportunities."

#

The **National Venture Capital Association (NVCA)** represents approximately 480 venture capital and private equity firms. NVCA's mission is to foster greater understanding of the importance of venture capital to the U.S. economy, and support entrepreneurial activity and innovation. According to a 2007 Global Insight study, venture-backed companies accounted for 10.4 million jobs and \$2.3 trillion in revenue in the U.S. in 2006. The NVCA represents the public policy interests of the venture capital community, strives to maintain high professional standards, provides reliable industry data, sponsors professional development, and facilitates interaction among its members. For more information about the NVCA, please visit www.nvca.org.

The **PricewaterhouseCoopers Private Equity & Venture Capital Practice** is part of the Global Technology Industry Group, www.pwcglobaltech.com. The group is comprised of industry professionals who deliver a broad spectrum of services to meet the needs of fast-growth technology start-ups and agile, global giants in key industry segments: networking & computers, software & Internet, semiconductors, life sciences and private equity & venture capital. PricewaterhouseCoopers is a recognized leader in each industry segment with services for technology clients in all stages of growth.

PricewaterhouseCoopers (www.pwc.com) provides industry-focused assurance, tax and advisory services to build public trust and enhance value for its clients and their stakeholders.

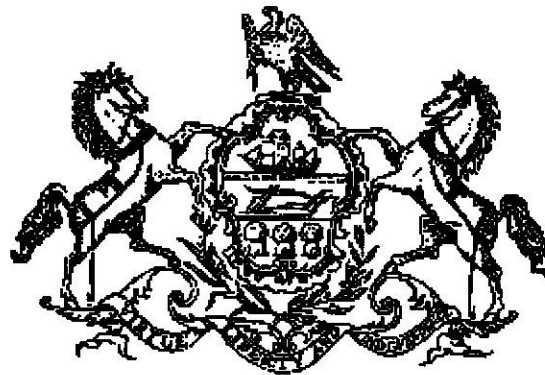
More than 146,000 people in 150 countries across our network share their thinking, experience and solutions to develop fresh perspectives and practical advice.

“PricewaterhouseCoopers” refers to the network of member firms of PricewaterhouseCoopers International Limited, each of which is a separate and independent legal entity.

About Thomson Financial

Thomson Financial, with 2006 revenues of US\$2 billion, is a provider of information and technology solutions to the worldwide financial community. Through the widest range of products and services in the industry, Thomson Financial helps clients in more than 70 countries make better decisions, be more productive and achieve superior results. Thomson Financial is part of The Thomson Corporation, a global leader in providing essential electronic workflow solutions to business and professional customers.

**Report to the Pennsylvania General Assembly
on the Research and Development (R&D)
Tax Credit**



**The Pennsylvania Department of Revenue
Bureau of Research**

March 14, 2008

The Pennsylvania R&D Tax Credit Statute

On May 7, 1997, Act 7 of 1997 created the Pennsylvania research and development (R&D) tax credit. The R&D tax credit provision became Article XVII-B of the Tax Reform Code of 1971 (TRC). The intent of the R&D tax credit was to encourage taxpayers to increase R&D expenditures within the Commonwealth in order to enhance economic growth. The terms and concepts used in the calculation of the Commonwealth's R&D tax credit are based on the federal government's R&D tax credit definitions for qualified research expense.¹

The R&D tax credit program is an important component of the on-going economic stimulus program designed to assist Pennsylvania-based technology businesses to grow and create new jobs. On December 23, 2003, Governor Edward G. Rendell signed Act 46 of 2003 into law. Then, on July 12, 2006, Governor Rendell signed Act 116 of 2006 into law. Both laws made several significant revisions to the R&D tax credit provisions.

For R&D tax credits issued through December 2003, the Department of Revenue (Department) could not approve more than \$15 million in total tax credits in any fiscal year. Additionally, \$3 million of the \$15 million was set aside for "small" businesses, where a "small business" is defined as a "for-profit corporation, limited liability company, partnership or proprietorship with net book value of assets totaling...less than five million dollars (\$5,000,000)."

Act 46 of 2003 doubled the total amount of R&D tax credits the Department could issue to \$30 million for tax credits awarded in December 2004 and December 2005. Act 46 of 2003 also doubled the "small" business set aside to \$6 million for R&D tax credits awarded by the Department in December 2004 and December 2005.

Act 116 of 2006 raised the total amount of R&D tax credits the Department could issue to \$40 million for tax credits awarded in December 2006 and forward. Act 116 of 2006 also raised the "small" business set aside amount to \$8 million for R&D tax credits awarded by the Department in December 2006 and after.

One of the more noteworthy features of the R&D tax credit program is the ability for R&D tax credit recipients to sell unused tax credits to other taxpayers. Act 46 of 2003 allowed R&D tax credit recipients to apply to the Department of Community and Economic Development (DCED) to sell or assign an R&D tax credit if there has been no claim for allowance filed within one year from the date that the Department approved the credit. The purchaser or assignee must use the newly obtained R&D tax credit in the taxable year in which the purchase or assignment of the credit is made. The purchased or assigned R&D credit cannot be used to offset more than seventy-five percent (75%) of a tax liability for a taxable year. The purchased or assigned credit cannot be carried over, carried back, resold or refunded. The provision to sell or assign unused R&D tax

¹ Public Law 99-514, 26 U.S.C. § 41.

credits applies to credits awarded in December 2003 and forward, but the initial sale or assignment could not take place until at least December 2004.

The R&D tax credit may be claimed against the following taxes: the capital stock and franchise tax (CSFT), the corporate net income tax (CNIT) or the personal income tax (PIT). Taxpayers claiming the credit against any of these taxes may not reduce their tax liability for taxable years 2004 and earlier by more than fifty percent (50%). Act 46 of 2003 eliminated this provision starting with tax year 2005; a taxpayer will be able to use the R&D tax credit to reduce a given tax liability by up to 100%. Taxpayers awarded R&D tax credits by the Department may carry over and apply any unused tax credit for up to fifteen (15) succeeding taxable years.

The Pennsylvania R&D tax credit, which is calculated using the increase over the taxpayer's base year research expenses for qualified R&D conducted within Pennsylvania, originally generated a tentative credit at the rate of 10 percent. However, Act 116 of 2006 increased the rate at which the tentative R&D tax credit is calculated to 20 percent for small businesses only beginning with the credit awarded in December 2006 and forward.

Taxpayers must submit an application to the Department by September 15th to apply for the R&D tax credit. The credit is for qualified Pennsylvania research expenditures made in the taxable year ending in the prior calendar year. The Department has until December 15th to notify taxpayers of their approved tax credit amount.

Under Act 7 of 1997, the R&D tax credit provisions were to sunset for taxable years ending after December 31, 2004. Act 89 of 2002 extended the sunset date for the program until December 31, 2006. Act 116 of 2006 further extended the sunset date for R&D tax credit program for taxable years ending before January 1, 2016. The Department cannot approve any R&D tax credits for any period beyond this date.

Major R&D Tax Credit Provisions in Act 46 of 2003

Act 46 of 2003 mandated that the Department report to the General Assembly the names of all taxpayers awarded R&D tax credits in each year starting in 2004 and for each year thereafter. Appendix A at the end of this report lists the name of each taxpayer receiving the R&D tax credit from the Department in December 2005, 2006 and 2007, along with the amount of credit received and utilized. In an effort to control the size of the document, this report will only list the names of taxpayers who have received the R&D tax credit in the current year and the two preceding years. Reports from earlier years will still be available that retain information on earlier years.

The other major change in the R&D tax credit program made by Act 46 of 2003 was the creation of the R&D Tax Credit Assignment Program. The program, which is primarily administered by DCED, permits taxpayers with unused R&D tax credits to sell them for cash to other taxpayers who can use them. The goal of the program is to "assist the growth and development of technology-oriented businesses, particularly small start-up technology businesses."² These small start-up firms, which often do not have significant tax liabilities in their early years,

² "Research and Development Tax Credit Assignment Program Guidelines," DCED, September 2004.

receive cash for their unused R&D tax credit.³ The purchasers of the unused R&D tax credit are then able to partially offset their own tax liabilities with the credit.

The earliest that unused R&D tax credits could be sold was December 2004, for credits awarded by the Department in December 2003. Taxpayers can only sell unused amounts of tax credits that exceed any collectible tax liability against which the credit may be offset. S Corporations may not apply to sell or assign any credit that has been passed-through to its shareholders. In order to sell an unused credit, the taxpayer must file an application with DCED. The application identifies the seller and the R&D tax credit that it intends to sell, along with the buyer and the amount for which the credit is being sold or assigned.⁴

The buyer of the unused R&D tax credit can use it to offset up to 75% of a qualified tax liability in a tax year. The buyer cannot carry forward, carry back, get a refund for or reassign the purchased credit. Further, the buyer must use the purchased tax credit against a qualified tax liability in the taxable year in which it was transferred. Lastly, the buyer must identify to the Department the taxpayer from which they bought the unused R&D tax credit.

An R&D tax credit will be considered to be unused and, therefore, available for sale as long as it is not applied against a specific tax year liability and the taxpayer does not have a collectible tax liability. As of February 2008, about \$52.2 million of the \$115 million awarded in December 2003 through 2006 has not been utilized and is, therefore, available for sale.

Of the \$15 million awarded in December 2003, 14 taxpayers sold or assigned \$1.2 million in unused credits. The unused credits were sold for \$1.1 million, or 91.6% of their value.

Of the \$30 million awarded in December 2004, 33 taxpayers sold or assigned \$3.5 million in unused credits. The unused credits were sold for \$3.1 million, or 89.8% of their value.

Of the \$30 million awarded in December 2005, 34 taxpayers sold or assigned \$7.7 million in unused credits. The unused credits were sold for \$7.2 million, or 93.1% of their value.

Of the \$40 million awarded in December 2006, 11 taxpayers sold or assigned \$0.7 million in unused credits. The unused credits were sold for \$0.6 million, or 91.3% of their value.

R&D Tax Credit Claimed and Awarded in Pennsylvania for December 2007

Table 1 shows the amount of R&D tax credit approved by the Department in 2007 for qualified research expenditures made by taxpayers in Pennsylvania in taxable year 2006. Without the \$40 million cap, almost \$95 million in credit would have been awarded to 439 taxpayers. Almost 74% of approved taxpayers received an R&D tax credit of less than \$50,000, receiving 11.4% of the total amount of approved credit. Taxpayers with an approved R&D tax credit of \$50,000 or more claimed 88.6% of the approved credit amount. The 115 applicants receiving \$50,000 or more in credit represented slightly more than 26% of the total number of applicants.

³ "Unused R&D tax credits" means that the taxpayer has not applied the tax credits against a specific tax year liability. Further, the taxpayer cannot sell the tax credit if it has any unpaid liabilities against which the tax credit could be used.

⁴ For more information on the application process, see "Research and Development Tax Credit Assignment Program Guidelines," DCED, September 2004, or contact DCED, Technology Investment Office, (717) 787-4147.

**Table 1. Pennsylvania Research and Development Tax Credit Program
Tentative and Approved Credit Awarded in 2007⁵**

Credit Range	Number of Applicants	Percent of Applicants	Tentative Credit Amount ⁶	Approved Credit Amount ⁷	Percent of Approved Credit
\$0 - \$4,999	109	24.8%	\$ 548,215	\$ 268,901	0.7%
\$5,000 - \$19,999	126	28.7%	\$ 2,532,055	\$ 1,410,570	3.5%
\$20,000 - \$49,999	89	20.3%	\$ 5,095,857	\$ 2,870,129	7.2%
\$50,000 - \$99,000	59	13.4%	\$ 8,155,877	\$ 4,105,292	10.3%
\$100,000 - \$499,999	41	9.3%	\$19,520,747	\$9,133,412	22.8%
\$500,000 - \$999,999	8	1.8%	\$ 15,044,109	\$ 5,675,174	14.2%
\$1,000,000 & greater	7	1.6%	\$43,836,058	\$16,536,522	41.3%
TOTAL	439	100%	\$94,732,918	\$40,000,000	100%

Table 2 details the tentative amount of R&D tax credit approved by the Department in the preceding nine years, beginning with the inception of the program in December 1997.

**Table 2. Pennsylvania Research and Development Tax Credit Program
Tentative Credit Awarded for 1997-2006**

Credit Awarded In	Number of Applicants	Tentative Credit Amount
December 1997	292	\$66,371,038
December 1998	270	\$56,572,339
December 1999	275	\$53,456,489
December 2000	284	\$59,207,493
December 2001	293	\$71,407,604
December 2002	254	\$74,255,800
December 2003	242	\$70,191,922
December 2004	274	\$70,932,913
December 2005	291	\$65,806,128
December 2006	379	\$78,640,025

⁵ Detail may not add due to rounding. An additional 78 applicants requested credit and were not approved for various reasons such as late filing and claims for \$0.

⁶ "Tentative" refers to the amount approved by the Department prior to pro-ration to maintain the \$40 million cap.

⁷ "Approved" refers to the pro-rated or final amount.

Table 3 presents the R&D tax credit approved in December 2007 by business type.

**Table 3. Pennsylvania Research and Development Tax Credit Program
Actual Credits by Business Type in 2007**

Business Type	Number of Taxpayers	Percent of Taxpayers	Amount of Actual Credit	Percent of Actual Credit
Manufacturing	229	52.2%	\$27,003,453	67.5%
Services	158	36.0%	\$ 9,879,650	24.7%
Misc. ⁸	52	11.8%	\$ 3,116,898	7.8%
TOTAL	439	100%	\$40,000,000	100%

Slightly more than half of the taxpayers receiving the tax credit were manufacturers, claiming over two-thirds of the total amount of approved credit. Pharmaceutical manufacturers claimed the largest single share; the 21 pharmaceutical manufacturers requesting credit were awarded \$13.6 million. Another large group of credit recipients included 30 computer-related companies in the service sector. They claimed just over \$1.3 million in credit in 2007.

Table 4 provides a breakdown of the R&D tax credit claimed by “small” and “not small” businesses in December 2007. As noted earlier, “small” businesses are those with net book assets of less than \$5 million.

**Table 4. Pennsylvania Research and Development Tax Credit Program
Small and Not Small Businesses in 2007**

Business Size	Number of Applicants	Percent of Applicants	Tentative Credit Amount	Approved Credit Amount	Percent of Approved Credit
Small	193	44.0%	\$ 6,845,879	\$ 6,845,879	17.1%
Not Small	246	56.0%	\$87,887,039	\$33,154,121	82.9%
TOTAL	439	100%	\$94,732,918	\$40,000,000	100%

In December 2007, “small” businesses claimed the second highest amount of credit that they ever have in any one year in the history of the program. However, “small” businesses in 2007 did not claim the entire \$8 million in R&D tax credit set aside for them. Consequently, “small” businesses received 100% of the credit for which they applied. Last year, “small” businesses also received 100% of the credit for which they applied. The \$40 million program cap reduced the amount of credit approved for the “not small” businesses to 37.7% of the requested amount. Last year, “not small” businesses received 46.0% of the amount of credit they requested.

Table 5 shows the history of the R&D tax credit for the “small” business set aside for 1997 through 2006. The only year in which “small” businesses claimed the total amount of credit set aside for them was 1999 when the limit was \$3 million. Act 46 of 2003 increased the “small”

⁸ Misc. business type includes business activities associated with individuals or corporations with standard industrial classification (SIC) codes for the agriculture, construction, utilities, wholesale, retail or financial, insurance and real estate sectors.

business set aside to \$6 million for R&D tax credits awarded beginning in December 2004. Act 116 of 2006 raised the “small” business set aside to \$8 million for R&D tax credits awarded beginning in December 2006. When “small” businesses claim less than the R&D credit set aside for them, the “not small” businesses receive a pro-rated amount of the excess R&D tax credit not claimed by the “small” businesses.

Table 5. Pennsylvania Research and Development Tax Credit Program History of the Small Business Set Aside, 1997-2006

Credit Awarded In	Number of Applicants	Tentative Credit Amount	Approved Credit Amount
December 1997	67	\$ 889,054	\$ 889,054
December 1998	85	\$1,821,354	\$1,821,354
December 1999	82	\$3,001,986	\$3,000,000
December 2000	83	\$1,545,359	\$1,545,359
December 2001	75	\$1,373,382	\$1,373,382
December 2002	79	\$1,615,602	\$1,615,602
December 2003	81	\$1,082,263	\$1,082,263
December 2004	94	\$1,419,845	\$1,419,845
December 2005	108	\$2,268,046	\$2,268,046
December 2006	173	\$7,081,079	\$7,081,079

Table 6 shows the amount of R&D tax credit that has been applied to CNIT, CSFT and PIT for taxable years 1997 through 2005. The data in table 6 are only for taxpayers that have directly received the tax credit from the Department. Taxpayers that have purchased an unused tax credit are not included in this table.

The first taxable year against which the credit could be used was 1997. For PIT, individuals who received the credit directly are included, as are any individual owners of S corporations or limited liability companies (LLCs) who received the pass-through benefit. All credit amounts are as of February 2008.

Table 6 shows the distribution of the R&D tax credits that have been applied to specific tax years. As of February 2008, almost 83% of the \$165 million in R&D tax credit that has been awarded for 1997 through 2005 has been applied to specific tax periods. About 54% of the credit awarded that has been applied has been applied to the CSFT; 42% has been applied to the CNIT. Approximately 3.6% of the credit awarded that has been applied has been applied to the PIT. Also, it is important to note that the amount of tax credit applied to a particular taxable year can vary over time as a taxpayer’s taxable year liability may change due to settlement, resettlement or the application of other credits.

**Table 6. Pennsylvania Research and Development Tax Credit Program
Application by Tax Type and Taxable Year, 1997-2005**

Taxable Year	Corporate Net Income Tax	Number of Taxpayers	Capital Stock & Franchise Tax	Number of Taxpayers	Personal Income Tax	Number of Taxpayers
1997	\$ 4,808,403	93	\$ 3,572,614	182	\$ 220,945	110
1998	\$ 2,589,218	76	\$ 5,192,445	189	\$ 425,255	153
1999	\$ 3,083,454	83	\$ 6,245,436	225	\$ 438,434	160
2000	\$ 4,495,931	77	\$ 6,430,351	191	\$ 467,170	157
2001	\$ 6,027,529	82	\$ 6,943,465	202	\$ 502,613	169
2002	\$ 7,962,525	51	\$ 5,616,637	208	\$ 697,536	163
2003	\$ 7,573,019	59	\$ 9,217,707	207	\$ 323,765	149
2004	\$ 14,511,161	64	\$ 8,941,717	267	\$ 657,191	164
2005	\$ 6,300,607	50	\$ 22,297,973	285	\$ 1,221,353	139
TOTAL	\$57,351,845		\$74,458,343		\$4,954,262	

It should be noted that it is possible that some portion of the R&D tax credit awarded by the Department might never be used against a tax year liability, particularly those credits not affected by the provisions of Act 46 of 2003. One possible reason for non-use is a reorganization in which a taxpayer claiming the credit goes out of existence or merges with another business before applying the credit against a tax liability. Another observation about usage of the tax credit is that, for taxable years prior to 2005, the amount of credit a taxpayer could claim against a tax type in one tax year was limited to 50% of the tax liability. This provision had ensured that a taxpayer could not totally eliminate a tax liability using only the R&D tax credit. However, Act 46 of 2003 eliminated the 50% limit. This fact, combined with the 15-year carryover, should allow taxpayers to receive most, if not all, of the tax benefit of the credit. Further, the provision in Act 46 of 2003 allowing the sale or assignment of any unused R&D tax credit awarded in December 2003 and after should minimize how much R&D tax credit is not utilized.

Current law reduces the CSFT rate each year until the tax is completely eliminated for taxable years beginning on or after January 1, 2011. Once the CSFT is eliminated, the R&D tax credit can no longer be claimed against it. This is important for S corporations and LLCs that are primarily subject to the CSFT, not the CNIT. S corporations and LLCs may pass the tax credit through to shareholders who can claim it against their PIT. The final year that the R&D tax credit will be awarded is 2015. Therefore, S corporations and LLCs, in order to use the R&D tax credit after 2011, will have to either apply it against PIT or sell their unused tax credits. They will be able to carry it forward for up to 15 taxable years.

Taxes Paid by R&D Tax Credit Recipients

The descriptive information provided in Table 7 shows the CNIT and CSFT liabilities for taxable year 2005 (the latest year for which reports are available for all taxpayers) for taxpayers receiving the R&D tax credit in 2007. Table 7 and Table 3 have a similar structure in order to

provide comparability. Please note that taxpayers claiming the credit against the personal income tax are not included in these data. Also, taxpayers who purchased unused R&D tax credit are not included in these data.

**Table 7. Pennsylvania Research and Development Tax Credit Program
Taxable Year 2005 Tax Liabilities by Business Type**

Business Type	2005 CSFT Liability	2005 CNIT Liability
Manufacturing	\$15,557,292	\$111,744,358
Services	\$ 3,478,533	\$ 14,261,603
Misc.	\$11,175,062	\$ 14,660,263
TOTAL	\$30,210,887	\$140,666,224

In order to provide an idea of the relative value of the R&D tax credit to recipients, an analysis was conducted comparing the R&D tax credit awarded in 2007 to the total tax year 2005 self-assessed⁹ CNIT and CSFT liabilities. Of the 434 taxpayers receiving the R&D tax credit in 2007 that are subject to the CNIT or CSFT, their total self-assessed 2005 tax year CNIT and CSFT liabilities totaled \$170.9 million. Though there are obviously varied ratios per individual taxpayer, overall the amount of tax credit awarded represents 23.4% of the self-assessed tax amount and 55.4% of the amount of the R&D tax credit requested. In comparison, the overall amount of tax credit awarded in 2006 (\$40.0 million) represented 31.1% of the total self-assessed tax amount for tax year 2004 and 61.1% of the amount of R&D tax credit requested.

The total 2005 CSFT liability for S corporations and LLCs receiving the R&D tax credit in 2007 was \$1.6 million. Out of the 173 Pennsylvania S corporations or LLCs, 53 had a CSFT liability of zero for 2005. The total 2005 CSFT liability for C corporations receiving the R&D tax credit in 2007 was \$28.6 million. Out of the 261 C corporations, 63 had a CSFT liability of zero for 2005.

The 261 C corporations receiving the tax credit in 2007 had a total taxable year 2005 CNIT liability of \$140.7 million. Of these companies, 142 were C corporations with a taxable year 2005 CNIT liability equal to zero, due to either zero or negative net income in taxable year 2005. In most cases, the income of Pennsylvania S corporations and LLCs is passed through to the individual owners and subject to the personal income tax.

Federal R&D Tax Credit Program

The federal government first adopted the R&D tax credit in 1981. The federal government does not cap the total credit amount that can be claimed in a taxable year. Despite the effort of some members of Congress, the R&D tax credit has never been a permanent part of the Internal Revenue Code (IRC). It has been extended ten times (most recently in December 2006) and lapsed on eight occasions (1986, 1992, 1995, 1997, 1999, 2004, 2005 and 2007). Under current federal law, as of the date of this publication, the R&D tax credit has not yet been renewed.

⁹ In some cases, the tax liability may have been self-assessed and settled.

The public policy goal of the R&D tax credit is to encourage the private sector to increase R&D spending, which in turn serves as a catalyst to economic growth by increasing productivity through the utilization of new technology. The credit is justified in economic theory on the basis of market failure, which occurs because firms may under-invest in R&D when they tend to not recoup all associated costs of investing in R&D. Hence, less R&D occurs than would be economically optimal for the economy as a whole. The R&D tax credit is a method for lowering the cost of R&D to private firms and increasing the return on investment. By increasing the rate of return on investment, the R&D tax credit encourages more R&D than would occur if the credit did not exist.

R&D Tax Credit Programs in Other States

A majority of states that have a corporate net income tax have sought to capture the potential benefits of encouraging R&D within their state by enacting an R&D tax credit. There are 39 other states besides Pennsylvania that provide for R&D tax credits. Most incorporate provisions of current or former R&D credits under the Internal Revenue Code.¹⁰

New Jersey's R&D tax credit is like Pennsylvania's in that it mirrors the federal R&D tax credit. However, New Jersey's R&D tax credit statute does not cap the total amount of credit that can be awarded in a year. Like the Pennsylvania R&D tax credit prior to Act 46 of 2003, there is a 50% cap on the amount of credit that a taxpayer can apply against its tax year liability. For tax year 2006, 254 returns were filed claiming \$42.7 million in credit. Additionally, the New Jersey R&D tax credit statute allows certain biotech and emerging technology companies to sell unused R&D tax credits to any company paying the corporate net income tax.¹¹ After Act 46 of 2003, all companies receiving the Pennsylvania R&D tax credit, regardless of their business sector, can sell or assign any unused R&D tax credits awarded beginning in December 2003.

Effectiveness of State R&D Tax Credit Programs

There has been relatively little research into the effectiveness of state R&D tax credits. Dr. Lolita A. Paff, an associate professor of business and economics at Penn State University, Berks-Lehigh Valley College, has done research in this area. While she has not formally examined the Pennsylvania R&D tax credit, she has analyzed and written about the effectiveness of the R&D credits in other states. In a paper examining the effectiveness of the R&D tax credits in Massachusetts and California, she found that state-level research and development tax credits may encourage certain types of R&D investment within a state.¹²

Overall, while there are indications that state R&D tax credits may be effective in some instances in increasing R&D activities within a state, it is clear that more research into the effectiveness of the state R&D tax credits is needed in order to better understand the direction and magnitude of the impact as well as the impact across different business sectors.

Effectiveness of the Pennsylvania R&D Tax Credit Program

The time frame for R&D projects in the private sector can be lengthy. It is not uncommon for businesses to have R&D projects extend for 10 to 15 years or more. The Pennsylvania R&D tax credit has thus far only had a potential impact on increasing research expenses in ten years, 1997

¹⁰ CCH Incorporated, Multistate Charts, ¶680-200 Credits for Investment/Research Activities.

¹¹ Companies with 225 employees or less may sell unused R&D tax credits in New Jersey.

¹² Lolita A. Paff (2005) "State-Level R&D Tax Credits: A Firm-Level Analysis", *Topics in Economic Analysis & Policy*: Vol. 5: No. 1, Article 17.

through 2006. Although 1996 Pennsylvania research expenses were used to calculate the credit in 1997, the taxpayer's R&D decisions could not have been affected by the credit prior to enactment of Act 7 in May 1997. Plus, the changes made by Act 46 of 2003 altered several parameters of the program that could impact the effectiveness of the R&D tax credit. Some observations can be made about the effectiveness of the Pennsylvania R&D tax credit in its relatively short existence.

Over the lifetime of the R&D tax credit program, 1,204 different taxpayers have been awarded some amount of credit. The number of taxpayers qualifying for the tax credit due to increased Pennsylvania research expenditures is still expanding, though there is some volatility from taxable year to taxable year regarding Pennsylvania research expenditure amounts.

Of the 439 taxpayers receiving the R&D tax credit in 2007, 178 were either Pennsylvania S corporations, LLCs or individuals and 261 were C corporations. The S corporations, LLCs and individuals received \$3.3 million in R&D tax credit, while the C corporations received \$36.7 million.

The 439 taxpayers claiming the R&D tax credit in 2007 had total Pennsylvania research expenditures in taxable year 2006 of \$3,861.1 million. This was a 17.3% increase compared to their total Pennsylvania research expenditures in taxable year 2005 of \$3,292.4 million.

Impact on Not Small Businesses

Out of the 439 taxpayers receiving the tax credit in 2007, 246 did not qualify as "small" businesses. Their total Pennsylvania research expenditures in taxable year 2006 were \$3,758.8 million, a 17% increase over their taxable year 2005 Pennsylvania research expenditures of \$3,213.2 million.

Of the 246 "not small" businesses, 200 increased their Pennsylvania research expenditures in taxable year 2006 over taxable year 2005 by 27.1% in the aggregate. Their Pennsylvania research expenditures in taxable year 2006 rose to \$2,841.7 million from \$2,236.3 million in taxable year 2005. Only 46 of these businesses reduced their Pennsylvania research expenditures over the same period. Their Pennsylvania research expenditures in taxable year 2006 declined by 6.1% to \$917.1 million from \$976.9 million in taxable year 2005.

Impact on Small Businesses

Out of the 439 taxpayers receiving the tax credit in 2007, 193 were "small" businesses. Their total Pennsylvania research expenditures in taxable year 2006 were \$102.3 million, a 29.1% increase over their taxable year 2005 Pennsylvania research expenditures of \$79.2 million.

The 193 "small" businesses received almost \$6.8 million in credit in 2007, the second most ever in the history of the program. Since the small business set aside was increased by Act 116 of 2006, these companies were able to receive the entire amount of credit for which they applied.

Of the 193 "small" businesses, 154 increased their Pennsylvania research expenditures in taxable year 2006 over taxable year 2005 by 41.9% in the aggregate. Their Pennsylvania research expenditures in taxable year 2006 rose to \$85.6 million from \$60.3 million in taxable year 2005. Only 39 "small" businesses reduced their Pennsylvania research expenditures over the same period. Their Pennsylvania research expenditures in taxable year 2006 declined by 11.8% to \$16.7 million from \$18.9 million in taxable year 2005.

Impact on First Time Claimants and New Companies

In 2007, 149 taxpayers were awarded the tax credit for the first time, claiming \$6.6 million in credit. Their Pennsylvania research expenditures totaled \$328.9 million for taxable year 2006. Conversely, 147 taxpayers that claimed the tax credit in 2006 did not receive any credit in 2007. These 147 taxpayers had Pennsylvania research expenditures in taxable year 2005 of about \$521.1 million and claimed about \$9.1 million in tax credit in 2006.

Of all the taxpayers claiming the R&D tax credit in 2007, 177 were companies incorporated in Pennsylvania after the passage of Act 7 of 1997. It is possible that not all of these newly incorporated companies are start-ups, but may be newly formed subsidiaries of a parent corporation. These companies claimed about \$21.1 million in tax credit in 2007 and had total Pennsylvania research expenditures in taxable year 2006 of about \$1,144.4 million, a 58.8% increase from their Pennsylvania research expenditures in taxable year 2005 of about \$720.5 million.

The 177 recently incorporated companies had a total taxable year 2005 CSFT liability of \$4.2 million; 82 taxpayers had zero tax liability. The 177 new companies had a total taxable year 2005 CNIT liability of \$28.9 million; 143 taxpayers had zero tax liability.

Impact on Established Companies

The Department has tracked Pennsylvania research expenditures for taxable years 1992 through 2006 for 25 taxpayers that received the R&D tax credit in, at least, 1997, 2002 and 2007 in order to study the impact of the program on well-established companies. This group of credit recipients has received about \$87 million in total tax credit from 1997 through 2007, or about 35.5% of the total \$245 million awarded over the eleven years. These 25 companies represent 8.6% of the number of companies that received the R&D tax credit in its first year, 1997. As a group, these taxpayers are a representative cross-section of the type of companies that have come to consistently claim the R&D tax credit.

These 25 taxpayers were awarded about \$8.8 million in R&D tax credit in 2007. This credit amount was about 0.5% of their total amount of Pennsylvania research expenditures for the taxpayers in taxable year 2006. For the 3 "small" businesses included in this group, the amount of R&D tax credit they received was about 4.0% of their Pennsylvania research expenditures for taxable year 2006. Overall, it is important to note that the R&D tax credit awarded was relatively small when compared to the amount of money spent by the taxpayers to conduct their research activities in the Commonwealth.

Of these 25 taxpayers, 22 did not qualify as "small" businesses. They received about \$86.6 million in tax credit over the eleven years. There were 3 "small" businesses that received about \$0.3 million in tax credit over the eleven year period.

Furthermore, 17 were manufacturers who received about \$73.6 million in R&D tax credit over the eleven years. The other 8 taxpayers from non-manufacturing sectors received about \$13.3 million in R&D tax credit over the eleven years.

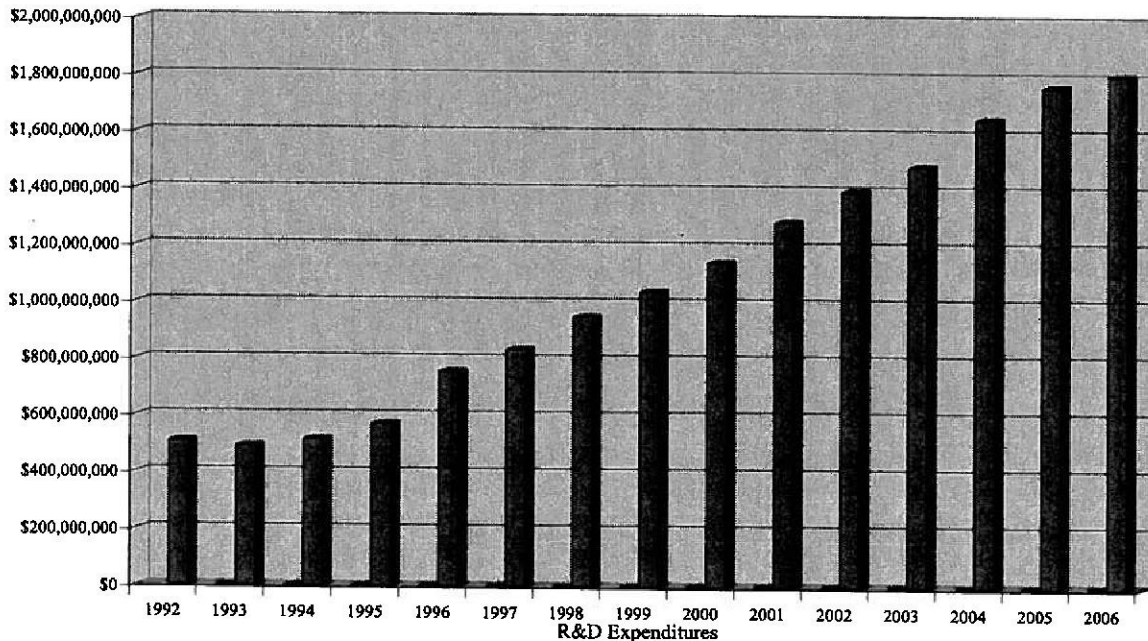
The 25 established taxpayers had a total CSFT liability for taxable year 2005 of \$8.9 million and a total CNIT liability for taxable year 2005 of \$49.6 million.

One measure of the potential effectiveness of the R&D tax credit is a comparison of the compound annual growth rate in Pennsylvania research expenditures before and after the enactment of the tax credit for such taxpayers. From taxable year 1992 through 1996 (before the enactment of the credit), their Pennsylvania research expenditures grew at a compound annual growth rate of 10.5%. From taxable year 1997 through 2006 (after the enactment of the credit), their Pennsylvania research expenditures grew at a compound annual growth rate of 9.1%. Therefore, as a group, these 25 taxpayers experienced a slightly smaller increase in their compound annual growth rate for their Pennsylvania research expenditures after enactment than before enactment of the R&D tax credit.

There are two reasons that the compound annual growth rate in Pennsylvania research expenditures is greater between taxable years 1992 and 1996 than it is between 1997 and 2006. First, several of these businesses had either zero or minimal Pennsylvania research expenditures in their earlier years. Hence, the growth rate during this period exceeded the growth rate between taxable years 1997 and 2006. Second, given that the national economy was slowing down in 2000 and entered a recession in 2001, some companies could have cut back their R&D budgets in response, thereby decreasing the compound annual growth rates when compared to the earlier period.

Chart 1 graphically shows the Pennsylvania R&D expenditures for the 25 established taxpayers for taxable years 1992 through 2006.

Chart 1. Pennsylvania R&D Expenditures by Year for 25 Established Companies With PA Expenditure Data Between 1992 and 2006



A further breakdown of the data for the 25 established companies is a comparison of the compound annual growth rate in Pennsylvania research expenditures before and after the enactment of the tax credit for the 17 manufacturers and 8 non-manufacturing companies as well as for “small” and “not small” businesses.

For taxable years 1992 through 1996, the Pennsylvania research expenditures for the 17 established manufacturers grew at a compound annual growth rate of 9.8%. For taxable years 1997 through 2006, their Pennsylvania research expenditures grew at a compound annual growth rate of 8.5%. In taxable year 1996, the total Pennsylvania research expenditures for the 17 established manufacturers were \$713.5 million. By taxable year 2006, that figure had grown by 126% to \$1,614.1 million. Therefore, as a group, the 17 established taxpayers in this sector experienced a slightly larger increase in their compound annual growth rate for their Pennsylvania research expenditures before enactment than after enactment of the R&D tax credit.

For taxable years 1992 through 1996, the Pennsylvania research expenditures for the 8 established non-manufacturing companies grew at a compound annual growth rate of 27.6%. For taxable years 1997 through 2006, their Pennsylvania research expenditures grew at a compound annual growth rate of 16.5%. In taxable year 1996, the total Pennsylvania research expenditures for the 8 established non-manufacturing companies were \$42.2 million. By taxable year 2006, that figure had grown by 359% to \$193.6 million. Therefore, as a group, these 8 established taxpayers experienced a smaller increase in their compound annual growth rate for their Pennsylvania research expenditures after enactment than before enactment of the R&D tax credit. One reason for this was that 2 of the 8 established non-manufacturing companies had zero Pennsylvania R&D expenses in at least 1992 or 1993, thereby over-stating the growth rate in the 1993 to 1996 period.

For taxable years 1992 through 1996, the Pennsylvania research expenditures for the 22 businesses not classified as “small” businesses grew at a compound annual growth rate of 10.5%. For taxable years 1997 through 2006, their Pennsylvania research expenditures grew at a compound annual growth rate of 9.1%. In taxable year 1996, the total Pennsylvania research expenditures for the 23 businesses not classified as “small” businesses were \$754.9 million. By taxable year 2006, that figure had grown by 139% to \$1,806.0 million.

For taxable years 1992 through 1996, the Pennsylvania research expenditures for the 3 “small” businesses grew at a compound annual growth rate of 35.4%. For taxable years 1997 through 2006, their Pennsylvania research expenditures grew at a compound annual growth rate of 8.7%. In taxable year 1996, the total Pennsylvania research expenditures for the 3 “small” businesses were about \$0.7 million. By taxable year 2004, that figure had grown 130% to \$1.7 million.

Conclusions on the Impact of the R&D Tax Credit in Pennsylvania

When all 439 taxpayers receiving the R&D tax credit in 2007 were examined, “small” businesses increased their Pennsylvania research expenditures in taxable year 2006 more than “not small” businesses. However, the Pennsylvania research expenditures for “small” businesses were only 2.6% of the total Pennsylvania research expenditures in taxable year 2006. The overwhelming majority of Pennsylvania research expenditures continue to be made by taxpayers not classified as “small” businesses.

Of the 25 taxpayers examined who received the R&D tax credit in, at least, 1997, 2002 and 2007, manufacturers were the primary beneficiaries. Across all of the business types, the R&D tax credit remains a small percentage of Pennsylvania research expenditures. Hence, many other factors are likely to affect a company’s R&D spending decisions.

Conclusion

The R&D tax credit has existed in Pennsylvania for eleven years. Literature evaluating the effectiveness of the federal R&D tax credit asserts that the federal R&D tax credit provides economic benefits and is, generally, an effective tool. Many factors other than the R&D tax credit influence a company's R&D investment decisions. This report's other observations can be summarized as:

- In 2007, 439 companies were awarded credits, receiving the capped amount of \$40 million, or just over 42% of the amount requested. This was the largest number of companies ever awarded the credit in one year. Further proof of the expanding number of applicants, in 2006, 379 companies were awarded the credit, the second largest companies ever awarded the credit in one year.
- In the absence of a cap, \$94.7 million in tax credits would have been awarded. This was an increase of almost 20.5% from the \$78.6 million in tax credits that would have been awarded in 2006 without the cap. This was the highest amount of tentative credit ever issued in one year.
- In tax year 2006, the 439 companies awarded the R&D tax credit in 2007 had total Pennsylvania research expenditures of \$3,861.1 million, a 17.3% increase over their tax year 2005 Pennsylvania research expenditures.
- Manufacturing firms, particularly pharmaceutical manufacturers, continue to be the primary beneficiaries of the R&D tax credit.
- "Small" businesses claimed \$6.8 million of the \$8.0 million in tax credit set aside for them in 2007. This was the second largest amount of credit ever claimed by "small" businesses in one calendar year.
- As of February 2008, a total of \$13.1 million in unused R&D tax credit have been sold from 2003, 2004, 2005 and 2006; approximately \$12.1 million was paid for the unused credit, or about 92% of their value.

APPENDIX A

**Table 1. Pennsylvania Research & Development Tax Credit Program
Taxpayers Receiving Credit in December 2005, 2006 and 2007 in Dollars
Sorted by 2007 Credit Awarded (Largest to Smallest)**

<i>Taxpayer Name</i>	<i>2007 Credit Awarded</i>	<i>2007 Credit Utilized¹</i>	<i>2005 & 2006 Credit Awarded</i>	<i>2005 & 2006 Credit Utilized¹</i>
Centocor Research & Development Inc.	\$5,788,647	\$0	\$481,709	\$481,709
SmithKline Beecham Corporation DBA GlaxoSmithKline	\$4,476,824	\$0	\$9,352,203	\$7,057,615
Rohm and Haas Chemicals LLC	\$1,650,568	\$0	\$0	\$0
J&J Pharmaceutical Research and Development LLC	\$1,275,434	\$0	\$1,942,496	\$765,647
Next Level Systems, Inc.	\$1,216,949	\$0	\$990,164	\$595,467
Wyeth	\$1,126,294	\$0	\$2,160,715	\$0
SEI Global Services Inc.	\$1,001,806	\$0	\$0	\$0
Comcast Corporation	\$965,975	\$0	\$1,515,457	\$123,484
Merck & Co Inc	\$878,244	\$0	\$5,668,754	\$4,993,831
Cephalon, Inc.	\$871,795	\$0	\$5,858,360	\$3,000,000
Tyco Electronics Corporation	\$691,332	\$0	\$82,437	\$0
Alcoa Inc.	\$625,076	\$0	\$715,049	\$715,049
Respironics, Inc.	\$610,595	\$0	\$670,382	\$256,266
Sanofi Pasteur Inc. (fka Aventis Pasteur Inc.)	\$520,232	\$0	\$745,306	\$745,306
Siemens Medical Solutions Health Services Corp.	\$511,925	\$0	\$3,091,332	\$1,431,058
CNH America LLC	\$484,367	\$0	\$485,609	\$0
Nucleonics, Inc.	\$435,435	\$0	\$517,851	\$106,128
Synthes Spine, Inc.	\$409,200	\$0	\$928,107	\$928,108
Medrad Inc.	\$358,392	\$0	\$691,621	\$691,622
Amgen Inc.	\$350,726	\$0	\$469,001	\$265,681
Carpenter Technology Corporation	\$328,523	\$0	\$0	\$0
Syth, Inc.	\$321,783	\$0	\$543,924	\$543,923
Lutron Electrics Co., Inc.	\$321,254	\$0	\$634,873	\$403,009
Interdigital Communications Corporation	\$319,745	\$0	\$0	\$0
Plextronics, Inc.	\$313,282	\$0	\$214,010	\$214,010
Precision Therapeutics, Inc.	\$308,103	\$0	\$242,167	\$50,374
Morphotek, Inc.	\$293,088	\$0	\$399,594	\$156,628
Vocollect Inc.	\$276,039	\$0	\$266,586	\$266,586
Mutual Pharmaceutical Company, Inc.	\$264,334	\$0	\$535,436	\$535,436
Duramed Research, Inc.	\$255,980	\$0	\$434,028	\$297,816
Chemimage Corporation	\$237,405	\$0	\$0	\$0
Neotropix, Inc.	\$225,706	\$0	\$132,413	\$180
Cardiokine, Inc.	\$218,317	\$0	\$0	\$0
Synthes North America, Inc.	\$214,523	\$0	\$359,893	\$359,893
Gemin X, Inc.	\$206,935	\$0	\$250,963	\$5,873
Protez Pharmaceuticals, Inc.	\$186,868	\$0	\$13,140	\$1,523
Ciber, Inc	\$180,084	\$0	\$20,335	\$20,335
Nupathe, Inc.	\$173,741	\$0	\$0	\$0
EMD Serono, Inc.	\$169,238	\$0	\$0	\$0
Heinz Management LLC	\$161,094	\$0	\$0	\$0
Ansys Inc.	\$153,283	\$0	\$358,519	\$132,979
Pennsylvania General Energy Company LLC	\$151,468	\$0	\$0	\$0
Agrofresh Inc.	\$148,012	\$0	\$10,906	\$10,906
Kennametal Inc.	\$145,038	\$0	\$0	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Adonix Transcomm, Inc.	\$143,933	\$0	\$0	\$0
MEI, Inc.	\$142,922	\$0	\$0	\$0
Bentley Systems Incorporated	\$142,901	\$0	\$108,095	\$108,095
Datacap Systems, Inc.	\$140,560	\$0	\$127,350	\$0
Immune Control Inc.	\$124,025	\$0	\$71,769	\$3,093
Vitae Pharmaceuticals, Inc.	\$123,074	\$0	\$448,499	\$12,474
McKesson Automation Inc.	\$121,961	\$0	\$195,183	\$47,108
Summers Laboratories, Inc.	\$119,664	\$0	\$17,347	\$4,339
Sioptical, Inc.	\$118,744	\$0	\$310,414	\$51,316
Genaera Corporation	\$118,548	\$0	\$504,354	\$177,307
International Business Machines Corporation	\$118,169	\$0	\$0	\$0
Wavefront Research, Inc.	\$106,948	\$0	\$101,599	\$0
Lucas Systems, Inc.	\$98,549	\$0	\$78,508	\$25,711
Bodymedia, Inc.	\$97,538	\$0	\$141,554	\$9,107
Lord Corporation	\$96,314	\$0	\$18,752	\$18,752
Ansoft Corporation	\$95,463	\$0	\$332,261	\$27,521
PHB, Inc.	\$94,367	\$0	\$124,638	\$84,209
Biorexis Pharmaceutical Corporation	\$94,077	\$0	\$150,085	\$57,652
Eaton Electrical Inc.	\$91,078	\$0	\$0	\$0
Prism Pharmaceuticals, Inc.	\$89,647	\$0	\$0	\$0
Discovery Laboratories, Inc.	\$88,683	\$0	\$599,733	\$339,151
Allegheny Ludlum Corporation	\$88,268	\$0	\$0	\$0
Powercast, LLC	\$84,951	\$0	\$0	\$0
Auxilium Pharmaceuticals Inc.	\$83,783	\$0	\$0	\$0
Boston Scientific Corporation	\$81,800	\$0	\$120,151	\$120,151
Mack Trucks, Inc.	\$81,719	\$0	\$0	\$0
Teleflex Incorporated	\$80,609	\$0	\$92,121	\$82,526
Parker White Metal Company	\$79,216	\$0	\$14,159	\$3,159
Orthovita, Inc.	\$77,799	\$0	\$40,370	\$993
Azevan Pharmaceuticals Inc.	\$77,564	\$0	\$0	\$0
Innovative Solutions & Support, Inc.	\$77,533	\$0	\$0	\$0
Specialty Tires of America - PA	\$76,213	\$0	\$63,294	\$0
Edcomm, Inc.	\$75,343	\$0	\$27,244	\$27,244
Extol International, Inc.	\$74,565	\$0	\$128,901	\$39
Teletracking Technologies, Inc.	\$73,384	\$0	\$65,933	\$26,076
Applied Systems Associates, Inc.	\$73,146	\$0	\$101,301	\$14,737
Synchronoss Technologies, Inc.	\$72,940	\$0	\$0	\$0
Del Monte Corporation	\$71,714	\$0	\$0	\$0
Fidelity Flight Simulation	\$69,711	\$0	\$49,456	\$49,456
Document Solutions Group, Inc.	\$68,845	\$0	\$0	\$0
Mine Safety Appliances Company	\$68,717	\$0	\$365,839	\$203,767
Allomet Corporation	\$67,944	\$0	\$0	\$0
McNeil PPC Inc.	\$67,552	\$0	\$198,887	\$198,887
Bridge Semiconductor Corporation	\$67,482	\$0	\$201,798	\$201,798
Nutec Tooling Systems, Inc.	\$67,100	\$0	\$4,149	\$3,200
Cyoptics, Inc.	\$67,048	\$0	\$0	\$0
Nextgen Healthcare Information Systems Inc.	\$64,157	\$0	\$0	\$0
Ceramco Inc.	\$63,997	\$0	\$0	\$0
Inmedius, Inc.	\$62,318	\$0	\$0	\$0
Prescient Medical, Inc.	\$61,787	\$0	\$0	\$0
Surveillance Data, Inc.	\$60,911	\$0	\$0	\$0
No Patience Express Inc.	\$60,584	\$0	\$0	\$0
Rhodia Inc.	\$59,276	\$0	\$0	\$0
Dynamis Therapeutics, Inc.	\$58,024	\$0	\$16,880	\$325

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Abbott Furnace Company, Inc.	\$57,061	\$0	\$0	\$0
Grant Street Group, Inc.	\$56,784	\$0	\$12,509	\$12,449
Videon Central Inc.	\$55,024	\$0	\$24,870	\$24,870
New Way Machine Components, Inc.	\$53,736	\$0	\$0	\$0
Greenleaf Corporation	\$53,263	\$0	\$49,798	\$0
Animas Corporation	\$52,940	\$0	\$71,030	\$0
Adolor Corporation	\$52,551	\$0	\$266,379	\$158,820
Portico Systems, Inc.	\$52,479	\$0	\$0	\$0
Clearcount Medical Solutions, Inc.	\$52,412	\$0	\$0	\$0
Immunotope Inc.	\$51,992	\$0	\$0	\$0
Gentis, Inc.	\$51,754	\$0	\$61,793	\$0
Emerson Process Management Power & Water Solutions, Inc.	\$51,663	\$0	\$70,018	\$48,139
Dielectric Solutions LLC	\$50,703	\$0	\$117,494	\$60,091
Marvin N. Hamilton	\$50,438	\$0	\$14,974	\$0
Seagate Technology LLC	\$50,395	\$0	\$309,402	\$0
Akustica, Inc.	\$50,313	\$0	\$688,212	\$160,661
Tengion, Inc.	\$50,069	\$0	\$30,628	\$30,628
Aerotech, Inc.	\$49,097	\$0	\$38,076	\$779
Jordan Acquisition Group LLC DBA American Auto Matrix	\$48,426	\$0	\$31,536	\$0
ProSanos Corporation	\$47,764	\$0	\$110,325	\$109,792
Sunrise Medical HHG Inc.	\$47,655	\$0	\$29,821	\$0
Accentra, Inc.	\$47,527	\$0	\$28,705	\$3,891
Advanced Rail Technology, Inc.	\$47,064	\$0	\$89,413	\$0
Ciclon Semiconductor Device Corporation	\$45,856	\$0	\$0	\$0
Mars Incorporated	\$45,778	\$0	\$0	\$0
Videomining Corporation	\$45,303	\$0	\$55,399	\$0
Hydro-Pac, Inc.	\$44,136	\$0	\$49,115	\$1,021
Colorcon, Inc. & Division	\$43,073	\$0	\$107,223	\$107,223
Ducttite LLC	\$42,900	\$0	\$0	\$0
Gamry Instruments, Inc.	\$41,483	\$0	\$29,940	\$0
Fleetwood Industries	\$41,380	\$0	\$0	\$0
Othera Pharmaceuticals, Inc.	\$41,200	\$0	\$97,206	\$1,344
Suburban Tool & Die Co., Inc.	\$40,766	\$0	\$0	\$0
Aprelia Pharmaceuticals Company, Inc.	\$40,203	\$0	\$32,497	\$0
Management Science Associates, Inc.	\$39,600	\$0	\$166,816	\$0
Reflex Software Corporation	\$39,573	\$0	\$45,884	\$0
Philadelphia Stock Exchange, Inc.	\$39,335	\$0	\$0	\$0
Bitarmor Systems, Inc.	\$38,846	\$0	\$16,214	\$3
Teva Pharmaceuticals USA, Inc.	\$38,605	\$0	\$114,227	\$114,227
Scott Technologies Inc.	\$38,436	\$0	\$9,522	\$0
LWB Refractories Company	\$38,312	\$0	\$0	\$0
LCR Electronics, Inc.	\$37,963	\$0	\$47,388	\$452
The Proctor & Gamble Paper Prod Company	\$37,778	\$0	\$199,559	\$95,871
Corry Rubber Corporation	\$37,478	\$0	\$18,317	\$16,260
Renal Solutions, Inc.	\$37,313	\$0	\$280,369	\$218,954
Follett Corporation	\$36,794	\$0	\$0	\$0
Viking Tool & Gage Inc.	\$36,718	\$0	\$0	\$0
I3 Archive, Inc.	\$36,281	\$0	\$13,579	\$2,728
Amuneal Manufacturing Corp.	\$36,228	\$0	\$0	\$0
Southco Inc.	\$36,162	\$0	\$0	\$0
Reading Precast, Inc.	\$35,891	\$0	\$0	\$0
Mitos Technologies Inc.	\$35,817	\$0	\$33,420	\$3,989

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Polymedix Pharmaceuticals, Inc.	\$35,764	\$0	\$31,862	\$12,974
Richter Precision Inc.	\$35,674	\$0	\$65,998	\$15,578
Science Applications International Corp	\$35,452	\$0	\$33,256	\$33,256
Kensley Nash Corporation	\$35,403	\$0	\$0	\$0
Jade Equipment Corp	\$34,154	\$0	\$22,395	\$0
21st Century Software, Inc.	\$33,032	\$0	\$20,360	\$0
Quiq LLC (dba Quiqmeds)	\$32,908	\$0	\$0	\$0
iofy Corporation	\$32,558	\$0	\$0	\$0
Infrascan, Inc.	\$32,253	\$0	\$13,301	\$13,301
Supelco, Inc.	\$31,667	\$0	\$73,845	\$0
Starlite Diversified, Inc.	\$31,357	\$0	\$30,888	\$0
Sipco Inc.	\$30,983	\$0	\$0	\$0
Coates Analytics	\$30,826	\$0	\$0	\$0
Protalex, Inc.	\$30,793	\$0	\$0	\$0
Energy Technology Partners, LLC	\$30,547	\$0	\$0	\$0
Frontline Placement Technologies, Inc.	\$29,888	\$0	\$96,162	\$4,739
Tray-Pak Corporation	\$29,646	\$0	\$34,092	\$474
Quintech Electronics & Commun, Inc.	\$29,407	\$0	\$22,431	\$22,431
Co-Exprise, Inc.	\$29,376	\$0	\$0	\$0
Interstate Management Resources, Inc.	\$28,721	\$0	\$22,293	\$11,106
Strohl Systems Group, Inc.	\$28,257	\$0	\$38,345	\$30,312
Interface Solutions, Inc.	\$27,426	\$0	\$0	\$0
Neuro Kinetics, Inc.	\$26,375	\$0	\$29,502	\$0
Victaulic Company	\$26,285	\$0	\$0	\$0
Sechan Electronics, Inc.	\$25,509	\$0	\$32,520	\$32,520
Cutting Edge Solutions, Inc.	\$25,263	\$0	\$8,409	\$8,409
Adhesives Research, Inc.	\$25,017	\$0	\$0	\$0
Aquatech International Corporation	\$24,575	\$0	\$32,748	\$0
Biocoat, Inc.	\$24,287	\$0	\$0	\$0
Investedge, Inc.	\$24,250	\$0	\$37,750	\$1,318
Spinworks LLC	\$24,183	\$0	\$0	\$0
Biosense Corporation	\$24,074	\$0	\$39,638	\$0
Fujirebio Diagnostics Inc.	\$23,849	\$0	\$2,276	\$0
Micromechatronics, Inc.	\$23,684	\$0	\$0	\$0
Fairmount Automation, Inc.	\$23,679	\$0	\$75,948	\$11,938
Gelest, Inc.	\$23,626	\$0	\$55,915	\$28,566
Express Dynamics LLC	\$23,626	\$0	\$0	\$0
Foodswing Inc.	\$23,452	\$0	\$0	\$0
Control Concepts Corporation	\$23,114	\$0	\$46,265	\$0
Boehringer Laboratories, Inc.	\$22,825	\$0	\$174,374	\$0
Resco Products, Inc.	\$22,732	\$0	\$140,172	\$0
P-Wave, Inc.	\$22,622	\$0	\$0	\$0
Elan Drug Delivery Inc.	\$22,437	\$0	\$0	\$0
Lockheed Martin Corporation	\$22,187	\$0	\$1,346,261	\$1,346,261
Fluorous Technologies, Inc.	\$21,652	\$0	\$14,365	\$0
Binney & Smith, Inc.	\$21,633	\$0	\$23,218	\$23,218
Verefi Technologies, Inc.	\$21,504	\$0	\$8,970	\$0
National Magnetics Group, Inc.	\$21,457	\$0	\$0	\$0
Can Corporation of America, Inc.	\$20,997	\$0	\$0	\$0
Schoolwires, Inc.	\$20,949	\$0	\$0	\$0
Sealstrip Corporation	\$20,522	\$0	\$27,230	\$0
Pro-Soft Technologies, Inc.	\$20,447	\$0	\$46,410	\$4,393
Library Video Company	\$20,380	\$0	\$0	\$0
Gyrotron Technology, Inc	\$20,102	\$0	\$5,430	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Sweet Street Desserts, Inc.	\$19,617	\$0	\$73,573	\$48,762
Bio Med Sciences, Inc.	\$19,575	\$0	\$0	\$0
Port Erie Plastics, Inc.	\$19,480	\$0	\$31,401	\$22,872
E.A. Fischione Instruments, Inc.	\$19,451	\$0	\$62,421	\$26,480
Moon Tool & Die Inc.	\$19,246	\$0	\$0	\$0
Clinical Financial Services, LLC	\$18,811	\$0	\$0	\$0
Vivisimo, Inc.	\$18,779	\$0	\$79,718	\$18,311
Cybergentics Corp	\$18,645	\$0	\$5,233	\$3,212
RCD Technology Inc.	\$18,515	\$0	\$0	\$0
Dutchland, Inc.	\$18,196	\$0	\$0	\$0
Global, Inc.	\$18,106	\$0	\$0	\$0
Rockland Immunochemicals Inc.	\$18,090	\$0	\$88,868	\$78,611
Essent Corporation	\$17,708	\$0	\$13,194	\$3,022
Datagrove, Inc.	\$17,600	\$0	\$1,744	\$847
Isosciences, LLC	\$17,577	\$0	\$5,727	\$863
Kalas Mfg Inc.	\$17,565	\$0	\$0	\$0
Phoenix Trim Works, Inc.	\$16,970	\$0	\$0	\$0
Crystalplex Corporation	\$16,969	\$0	\$0	\$0
Graymont (PA) Inc.	\$16,903	\$0	\$37,274	\$793
Giorgio Foods, Inc.	\$16,862	\$0	\$0	\$0
Oberg Industries, Inc.	\$16,820	\$0	\$6,811	\$0
Soft Genetics LLC	\$16,113	\$0	\$0	\$0
Electro-Science Laboratories Inc.	\$15,997	\$0	\$27,243	\$0
Appleton Papers Inc.	\$15,932	\$0	\$0	\$0
Classic Industries, Inc.	\$15,843	\$0	\$0	\$0
Sartomer Company, Inc.	\$15,576	\$0	\$21,616	\$4,883
The Drucker Co., Inc.	\$15,563	\$0	\$0	\$0
Multimodal Technologies Inc.	\$15,375	\$0	\$0	\$0
Tetralogic Pharmaceuticals Corporation	\$15,227	\$0	\$32,385	\$9,567
Dontech, Inc.	\$15,213	\$0	\$23,580	\$7,603
Optium Corporation	\$14,924	\$0	\$0	\$0
Pelletron Corporation	\$14,821	\$0	\$4,978	\$0
Weiler Corporation, Inc.	\$14,782	\$0	\$10,529	\$4,917
Jennison Corporation	\$14,701	\$0	\$5,086	\$0
PSG Controls Inc.	\$14,651	\$0	\$19,739	\$4,934
Tech Tool & Mold, Inc.	\$14,557	\$0	\$0	\$0
Burnham LLC	\$14,479	\$0	\$0	\$0
Solo Laboratories, Inc.	\$14,165	\$0	\$7,525	\$0
Polytek Development Corp.	\$13,960	\$0	\$10,246	\$10,246
Reynolds & Reynolds Electronics, Inc.	\$13,482	\$0	\$32,015	\$13,642
Kollabnet, Inc.	\$13,439	\$0	\$35,241	\$35,241
Kovatch Mobile Equip	\$13,193	\$0	\$0	\$0
New Standard Corporation	\$13,113	\$0	\$0	\$0
Aethon, Inc.	\$12,991	\$0	\$27,313	\$4,335
Algor Inc.	\$12,672	\$0	\$1,054	\$0
Carnegie Learning, Inc.	\$12,624	\$0	\$0	\$0
Finish Thompson Inc.	\$12,540	\$0	\$29,635	\$0
Pioneer Hi Bred International Inc.	\$12,388	\$0	\$32,954	\$12,812
D&E Machining Inc.	\$12,226	\$0	\$0	\$0
The Fredericks Company	\$12,193	\$0	\$0	\$0
Corry Micronics, Inc.	\$12,159	\$0	\$0	\$0
C-P Converters, Inc.	\$11,859	\$0	\$0	\$0
Solid Cactus Inc.	\$11,803	\$0	\$0	\$0
East Coast Erosion Blankets LLC	\$11,789	\$0	\$0	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Mosebach Manufacturing Company	\$11,772	\$0	\$0	\$0
Streamlight, Inc.	\$11,709	\$0	\$22,111	\$22,111
Pyrotek Incorporated	\$11,613	\$0	\$0	\$0
Dodge-Regupol, Inc.	\$11,439	\$0	\$11,442	\$11,442
WER Corporation	\$11,061	\$0	\$0	\$0
Sonomedix, Inc.	\$10,984	\$0	\$0	\$0
Probaris Technologies, Inc.	\$10,770	\$0	\$68,014	\$35,088
Saladax Biomedical, Inc.	\$10,644	\$0	\$15,779	\$0
SR Holdings LLC (dba SDR Holdings LLC)	\$10,528	\$0	\$0	\$0
Calendonian Dye Works, Inc.	\$10,258	\$0	\$2,100	\$0
Stagemark, Inc.	\$10,218	\$0	\$0	\$0
Gai-Tronics Corporation	\$10,194	\$0	\$0	\$0
Communications Test Design, Inc.	\$10,166	\$0	\$0	\$0
Dynamet Incorporated	\$9,945	\$0	\$0	\$0
Erie Plastics Corporation	\$9,880	\$0	\$2,595	\$0
Boyesen, Inc.	\$9,826	\$0	\$0	\$0
Dynamic Materials Corporation	\$9,729	\$0	\$18,910	\$18,910
United Metal Receptacle Corp	\$9,550	\$0	\$0	\$0
Gentex Corporation	\$9,490	\$0	\$39,779	\$39,780
Beaumont Technologies, Inc.	\$9,191	\$0	\$15,796	\$365
Sentient Investment Corporation	\$9,145	\$0	\$343	\$343
Betts Industries Inc.	\$8,982	\$0	\$0	\$0
Bio-Rad Laboratories Inc.	\$8,954	\$0	\$7,745	\$0
Cook Myosite Inc.	\$8,857	\$0	\$6,807	\$354
Altoona Beasley Manufacturing, Inc.	\$8,742	\$0	\$0	\$0
O.F. Zurn Company	\$8,546	\$0	\$5,340	\$0
Everight Precision Technologies Corp	\$8,410	\$0	\$0	\$0
Combined Systems, Inc.	\$8,373	\$0	\$0	\$0
Penn Color, Inc.	\$8,292	\$0	\$31,621	\$12,972
Arvite Technologies, Inc.	\$7,956	\$0	\$6,561	\$0
R.M. Palmer Company	\$7,919	\$0	\$2,918	\$0
Salvage Direct, Inc.	\$7,858	\$0	\$0	\$0
Belco Tool And Manufacturing Inc	\$7,811	\$0	\$0	\$0
Fairmount Foundry Inc.	\$7,741	\$0	\$10,022	\$2,205
Biometric Imaging, Inc.	\$7,555	\$0	\$15,522	\$220
Becton Dickinson and Company	\$7,555	\$0	\$9,151	\$3,709
Reading Alloys, Inc	\$7,424	\$0	\$0	\$0
Accudyn Products Inc.	\$7,406	\$0	\$7,879	\$0
RAM Industries LLC	\$7,309	\$0	\$1,922	\$0
Washington Penn Plastic Co Inc.	\$7,293	\$0	\$19,157	\$19,157
Eric W. Kinter	\$7,221	\$0	\$15,442	\$0
Gary D. Bell	\$7,221	\$0	\$15,442	\$0
Ronald P. Sousae	\$7,221	\$0	\$15,442	\$0
Evaheart Medical USA, Inc.	\$6,947	\$0	\$1,035	\$0
Watson Standard Coatings Company	\$6,944	\$0	\$13,749	\$3,998
Watson Standard Limited, Inc.	\$6,944	\$0	\$14,586	\$207
Metplas, Inc.	\$6,940	\$0	\$0	\$0
World Electronics Sales and Service, Inc.	\$6,909	\$0	\$10,089	\$597
Greene, Tweed & Co, Inc.	\$6,790	\$0	\$58,338	\$58,338
Levan Machine Co., Inc.	\$6,789	\$0	\$0	\$0
World Wide Plastics, Inc.	\$6,614	\$0	\$0	\$0
Hamill Manufacturing Company	\$6,550	\$0	\$0	\$0
Area Tool & Manufacturing, Inc.	\$6,547	\$0	\$11,851	\$0
Juniata Fabrics, Inc.	\$6,487	\$0	\$0	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Dads Product Company	\$6,451	\$0	\$24,916	\$9,414
Implementation & Consulting Service	\$6,447	\$0	\$1,673	\$0
Rockland, Inc.	\$6,413	\$0	\$0	\$0
Proteopure Inc.	\$6,111	\$0	\$0	\$0
MESH, Inc.	\$5,920	\$0	\$4,834	\$2,867
American Textile Company, Inc.	\$5,772	\$0	\$17,037	\$17,036
Eagle Brass Company	\$5,719	\$0	\$0	\$0
Packworld USA, Ltd.	\$5,633	\$0	\$0	\$0
Ace Animals, Inc.	\$5,535	\$0	\$17,951	\$9,119
Cook Vascular Corporation	\$5,467	\$0	\$1,952	\$1,952
QBC Diagnostics, Inc.	\$5,457	\$0	\$0	\$0
TSK Partners, Inc.	\$5,391	\$0	\$0	\$0
Control Chief Corporation	\$5,307	\$0	\$5,333	\$0
Mesh Semiconductor, Inc. (fka Gatechange Technologies, Inc.)	\$5,250	\$0	\$26,749	\$14,557
Phonetics, Inc. (DBA Sensaphone)	\$5,211	\$0	\$33,091	\$7,282
Touchtown Inc.	\$5,177	\$0	\$3,157	\$0
Alcoa Kama Inc (fka Kama of Illinois Corp)	\$5,126	\$0	\$0	\$0
Verizon Data Services Inc.	\$5,124	\$0	\$0	\$0
Hanley & Bird, Inc.	\$4,995	\$0	\$6,070	\$0
TIW Technology, Inc.	\$4,946	\$0	\$609	\$0
Quantum Software Solutions, Inc.	\$4,824	\$0	\$0	\$0
W. W. Patterson Company	\$4,818	\$0	\$8,477	\$3,524
Sipco Molding Technologies, Inc.	\$4,716	\$0	\$9,455	\$0
Cinergen, LLC	\$4,681	\$0	\$0	\$0
Innovative Control Systems Inc.	\$4,672	\$0	\$0	\$0
Channellock, Inc.	\$4,586	\$0	\$0	\$0
Remcomm, Inc.	\$4,574	\$0	\$0	\$0
Psychology Software Tools, Inc.	\$4,564	\$0	\$0	\$0
Clean Burn, Inc.	\$4,509	\$0	\$10,337	\$0
Renaissance Nutrition Inc.	\$4,478	\$0	\$0	\$0
Vigon International, Inc.	\$4,468	\$0	\$3,046	\$3,045
Henson Company, Inc.	\$4,346	\$0	\$5,114	\$3,455
Blair Strip Steel Co.	\$4,330	\$0	\$4,144	\$512
Matric Limited	\$4,294	\$0	\$0	\$0
Universal Electric Corporation	\$4,250	\$0	\$0	\$0
SMGT, Inc. (fka Synthes Management, Inc.)	\$4,191	\$0	\$9,107	\$9,107
WebClients, Inc.	\$4,135	\$0	\$0	\$0
Specialty Tires of America, Inc.	\$4,116	\$0	\$7,215	\$7,215
Bulk Chemicals Inc.	\$4,105	\$0	\$3,778	\$3,777
C W E, Inc.	\$4,037	\$0	\$3,093	\$3,093
Misco Products Corporation	\$4,002	\$0	\$8,202	\$0
Koehler-Bright Star Inc.	\$3,881	\$0	\$6,512	\$6,512
Jamestown Paint Company	\$3,863	\$0	\$0	\$0
Eaton Hydraulics Inc.	\$3,862	\$0	\$49,457	\$49,457
Integrated Management Solutions Inc.	\$3,743	\$0	\$1,356	\$0
Leech Industries, Inc.	\$3,731	\$0	\$0	\$0
Diversified Coatings, Inc.	\$3,712	\$0	\$5,408	\$3,340
National Bearings Company	\$3,702	\$0	\$8,489	\$0
Fiber-Line, Inc.	\$3,663	\$0	\$0	\$0
Smart Parts, Inc.	\$3,638	\$0	\$12,906	\$0
Boose Aluminum Foundry Co. Inc.	\$3,480	\$0	\$0	\$0
Griffith Brothers Whitetail Ridge Inc.	\$3,475	\$0	\$0	\$0
Tool-All, Inc.	\$3,471	\$0	\$6,827	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Met-Pro Corporation	\$3,439	\$0	\$7,403	\$3,724
Competition Tire East, Inc.	\$3,371	\$0	\$10,478	\$10,478
Reading Pretzel Machinery Corp.	\$3,170	\$0	\$3,599	\$0
Yuasa Battery, Inc.	\$3,135	\$0	\$10,603	\$10,603
Minrad, Inc.	\$3,081	\$0	\$21,164	\$21,164
Golden Brothers, Inc.	\$3,073	\$0	\$10,381	\$1,574
Workhorse Rail LLC	\$3,004	\$0	\$0	\$0
Creative Pultrusions, Inc.	\$2,918	\$0	\$0	\$0
Blair Sign Company Inc.	\$2,898	\$0	\$0	\$0
PSB Industries, Inc.	\$2,890	\$0	\$0	\$0
MDL Corporation	\$2,868	\$0	\$0	\$0
Kroff Chemical Company	\$2,832	\$0	\$0	\$0
Modern Industries, Inc.	\$2,796	\$0	\$15,841	\$7,818
Builders Support & Supply, Inc.	\$2,746	\$0	\$16,627	\$2,238
Burstnet Technologies Inc.	\$2,604	\$0	\$0	\$0
Weaver Industries, Inc.	\$2,580	\$0	\$0	\$0
G.O. Carlson, Inc.	\$2,559	\$0	\$0	\$0
Comprehensive Safety Compliance, Inc.	\$2,488	\$0	\$0	\$0
USSC, LLC	\$2,464	\$0	\$0	\$0
Specialty Chemical Systems, Inc.	\$2,416	\$0	\$0	\$0
RE 2, Inc.	\$2,333	\$0	\$1,676	\$0
Conductive Technologies Inc.	\$2,313	\$0	\$1,248	\$264
Applied Clinical Intelligence, LLC	\$2,162	\$0	\$0	\$0
Aptagen, LLC	\$2,112	\$0	\$0	\$0
L.F. Lambert Spawn Company, Inc.	\$2,109	\$0	\$2,945	\$0
Numonics Corporation	\$2,105	\$0	\$0	\$0
Woodcraft Industries, Inc.	\$2,103	\$0	\$0	\$0
Reading Technologies, Inc.	\$2,035	\$0	\$7,721	\$0
Solar Innovations, Inc.	\$1,987	\$0	\$53,803	\$0
Lozier Corporation	\$1,963	\$0	\$0	\$0
IntelliStem Orthopaedic Innovations, Inc.	\$1,962	\$0	\$0	\$0
Progress For Industry Inc.	\$1,929	\$0	\$0	\$0
Brotech Corporation	\$1,877	\$0	\$0	\$0
Mallet and Company Inc.	\$1,810	\$0	\$9,782	\$8,848
Pride Mobility Products Corporation	\$1,754	\$0	\$105,174	\$1,628
Thermodepolymerization Process LLC	\$1,728	\$0	\$56,012	\$0
Benco Dental Supply Co.	\$1,660	\$0	\$0	\$0
Kovatch Corp.	\$1,612	\$0	\$0	\$0
NAC Carbon Products, Inc.	\$1,600	\$0	\$0	\$0
TW AOL Holdings Inc. (fka America Online, Inc.)	\$1,577	\$0	\$7,665	\$7,665
Eriez Manufacturing	\$1,544	\$0	\$368	\$368
Silberline Manufacturing Co., Inc.	\$1,520	\$0	\$4,003	\$0
P.D.K. - Hardy, Inc.	\$1,427	\$0	\$2,125	\$0
SKC, Inc.	\$1,331	\$0	\$3,900	\$556
Keystone Findings, Inc.	\$1,294	\$0	\$1,124	\$0
Hodge Foundry, Inc.	\$1,238	\$0	\$3,483	\$494
Oberon, Inc.	\$1,206	\$0	\$0	\$0
EcoTech Marine, LLC	\$1,189	\$0	\$0	\$0
KW, Inc.	\$1,175	\$0	\$0	\$0
Jennison Precision Machine, Inc.	\$1,168	\$0	\$5,561	\$0
Harsco Corporation	\$1,160	\$0	\$0	\$0
Edgemate Inc.	\$1,058	\$0	\$0	\$0
Richardsapex, Inc.	\$1,054	\$0	\$1,628	\$1,628

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
L T L Wholesale, Inc.	\$975	\$0	\$4,646	\$3,067
Bachem Bioscience, Inc.	\$963	\$0	\$1,744	\$1,744
Alumax Mill Products Inc.	\$887	\$0	\$0	\$0
Gecco Inc.	\$887	\$0	\$0	\$0
NH Laboratories, Inc.	\$847	\$0	\$2,017	\$0
Rossman Audio LLC	\$829	\$0	\$0	\$0
B.S.C. Technologies, Inc.	\$574	\$0	\$0	\$0
Kopp Glass, Inc.	\$549	\$0	\$0	\$0
Computer Support Services, Inc.	\$507	\$0	\$1,393	\$1,393
James Austin Company	\$437	\$0	\$0	\$0
Excalibur Machine, Inc.	\$370	\$0	\$75,413	\$0
Kuhn Tool & Die Co.	\$310	\$0	\$37,570	\$0
Campbell Manufacturing, Inc.	\$289	\$0	\$0	\$0
Reading Consumer Products, Inc.	\$248	\$0	\$1,772	\$339
Fusion Coatings, Inc.	\$210	\$0	\$0	\$0
Portec Rail Products, Inc.	\$198	\$0	\$2,273	\$2,273
Metal Systems Development, Inc.	\$184	\$0	\$249	\$90
Team Ten LLC	\$134	\$0	\$0	\$0
Better Baked Foods, Inc.	\$98	\$0	\$7,386	\$0
Goulds Pumps PA Inc.	\$68	\$0	\$0	\$0
McLanahan Corporation	\$55	\$0	\$0	\$0
ABB Inc	\$0	\$0	\$108,613	\$0
Acutec Precision Machining, Inc.	\$0	\$0	\$19,929	\$0
Acutronic USA, Inc.	\$0	\$0	\$9,307	\$448
Ad-Base Systems, Inc.	\$0	\$0	\$57,069	\$0
Adelphi Kitchens, Inc.	\$0	\$0	\$30,102	\$6,229
Alung Technologies, Inc.	\$0	\$0	\$284,608	\$284,608
American Beverage Corporation	\$0	\$0	\$6,311	\$3,484
American Consolidated Mfg. Co., Inc.	\$0	\$0	\$6,704	\$0
Amplifier Research Corp.	\$0	\$0	\$6,574	\$3,098
Apogee Biotechnology Corporation	\$0	\$0	\$109,282	\$43,991
APT Advanced Polymer Technology Corp	\$0	\$0	\$3,092	\$3,092
Aquarium Pharmaceuticals, Inc.	\$0	\$0	\$3,729	\$1,146
Arrow International, Inc.	\$0	\$0	\$495,804	\$8,507
ASI Technologies, Inc.	\$0	\$0	\$15,919	\$0
ATI Research Inc.	\$0	\$0	\$508,707	\$0
ATM Holdings, Inc. (fka ATM Corporation of America)	\$0	\$0	\$54,573	\$54,573
ATR of PA Inc.	\$0	\$0	\$9,241	\$0
Avail Technologies, Inc.	\$0	\$0	\$20,899	\$9,242
Bel Connector Inc T/A Stewart Connector	\$0	\$0	\$22,353	\$8,020
Benshaw, Inc.	\$0	\$0	\$7,142	\$0
Biosafe, Inc.	\$0	\$0	\$35,010	\$0
Biospectra, Inc.	\$0	\$0	\$28,801	\$25,108
Bostik, Inc.	\$0	\$0	\$17,435	\$17,435
Bra-Vor Tool & Die Company, Inc.	\$0	\$0	\$13,437	\$0
Brightline, Inc.	\$0	\$0	\$4,630	\$0
C&J Industries, Inc.	\$0	\$0	\$5,394	\$0
CA Research Inc.	\$0	\$0	\$11,345	\$4,836
Cardiac Telecom Corporation	\$0	\$0	\$21,742	\$0
CardiacAssist, Inc.	\$0	\$0	\$8,376	\$26
Cerexagri, Inc.	\$0	\$0	\$18,318	\$18,318
Cira Discovery Sciences Inc.	\$0	\$0	\$19,342	\$18,930
Circadiant Systems, Inc.	\$0	\$0	\$14,191	\$0

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Collaborative Fusion, Inc.	\$0	\$0	\$97,083	\$0
Columbia Research Laboratories, Inc.	\$0	\$0	\$11,717	\$0
Comor Inc.	\$0	\$0	\$3,193	\$3,193
Componentone LLC	\$0	\$0	\$5,594	\$0
Compoze Software, Inc.	\$0	\$0	\$45,519	\$0
Computer Aid, Inc.	\$0	\$0	\$29,036	\$0
Confluence Technologies, Inc.	\$0	\$0	\$20,424	\$35
Corazon, Inc.	\$0	\$0	\$71	\$71
Cordis Corporation	\$0	\$0	\$23,003	\$23,003
Custom Milling & Consulting, Inc.	\$0	\$0	\$19,393	\$0
Dentsply International Inc.	\$0	\$0	\$57,954	\$57,954
DOPACO Inc.	\$0	\$0	\$1,614	\$1,614
Dosebusters USA Inc.	\$0	\$0	\$4,093	\$0
Douglas K. Hanaway	\$0	\$0	\$772	\$772
Drug Plastics & Glass Co. Inc.	\$0	\$0	\$8,449	\$0
DST Health Solutions Services, LLC (fka Synartech Health System Solutions LLC)	\$0	\$0	\$34,119	\$1,809
Dyco, Inc.	\$0	\$0	\$8,632	\$2,168
Dynamic Manufacturing, Inc.	\$0	\$0	\$9,274	\$9,274
Dynavox Systems Inc.	\$0	\$0	\$38,298	\$12,178
E I Du Pont De Nemours and Company	\$0	\$0	\$353,671	\$187,940
Eagle Vision Pharmaceutical Corp.	\$0	\$0	\$11,989	\$0
East Penn Manufacturing Company	\$0	\$0	\$36,668	\$26,395
Cook Technologies, Inc.	\$0	\$0	\$4,677	\$0
Electronics for Imaging, Inc.	\$0	\$0	\$132,538	\$132,539
Eli Lilly and Company	\$0	\$0	\$1,355,633	\$1,212,233
Elsner Engineering Works, Inc.	\$0	\$0	\$6,092	\$52
Environmental Coordination Services	\$0	\$0	\$8,838	\$0
Envirotrol Inc.	\$0	\$0	\$3,197	\$2,277
Equitable Production Company	\$0	\$0	\$13,406	\$13,406
Equitable Resources, Inc.	\$0	\$0	\$36,460	\$36,460
Eva M. Hanaway	\$0	\$0	\$2,058	\$2,058
Everite Machine Products Co., Inc.	\$0	\$0	\$3,929	\$0
Everson Tesla, Inc	\$0	\$0	\$34,434	\$34,434
Extrude Hone Corporation	\$0	\$0	\$17,717	\$837
Fabri Kal Corporation	\$0	\$0	\$7,657	\$162
Fairchild Semiconductor Corporation	\$0	\$0	\$106,223	\$106,223
Fleetwood Industries Business Trust	\$0	\$0	\$84,088	\$2,027
Flexcut Tool Co. Inc.	\$0	\$0	\$1,432	\$0
Ford Motor Company	\$0	\$0	\$13,421	\$13,421
Four Rivers Software Systems, Inc.	\$0	\$0	\$27,286	\$27,286
Frank L. Perryman	\$0	\$0	\$1,744	\$1,744
Fres-co System USA, Inc.	\$0	\$0	\$20,934	\$20,934
Fujisawa Healthcare Inc.	\$0	\$0	\$111,312	\$0
Gamajet Cleaning Systems, Inc.	\$0	\$0	\$15,015	\$0
Gateway Ticketing Systems, Inc.	\$0	\$0	\$47,907	\$0
GCS Group, Inc.	\$0	\$0	\$11,529	\$8,100
Genesis Partners, LP	\$0	\$0	\$34,761	\$0
Gorell Enterprises, Inc	\$0	\$0	\$21,941	\$13,114
Grace Industries, Inc.	\$0	\$0	\$18,203	\$6,881
GVM, Inc.	\$0	\$0	\$5,480	\$2,290
Halide Group, Inc.	\$0	\$0	\$50,948	\$791
Haskel International Inc.	\$0	\$0	\$414	\$414
Healthcare Data Exchange, LLC	\$0	\$0	\$87,395	\$87,395

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Heatrex, Inc.	\$0	\$0	\$1,091	\$0
Honeywell International Inc	\$0	\$0	\$237,851	\$206,078
Howard Bowell	\$0	\$0	\$5,238	\$0
II-VI Incorporated	\$0	\$0	\$180,594	\$130,530
Illuminex Corporation	\$0	\$0	\$13,819	\$3,082
Immunetrics, Inc	\$0	\$0	\$39,027	\$0
Immunicon Corporation	\$0	\$0	\$296,717	\$296,717
Imperial Carbide, Inc.	\$0	\$0	\$49,285	\$0
Imperial Newbould, Inc.	\$0	\$0	\$8,994	\$0
Industrial Science & Technology	\$0	\$0	\$1,563	\$0
Infinera Corporation	\$0	\$0	\$99,820	\$99,820
InfoMC, Inc.	\$0	\$0	\$10,934	\$0
Innovative Office Products, Inc.	\$0	\$0	\$13,581	\$0
Insurance Data Processing, Inc.	\$0	\$0	\$26,366	\$21,332
Integrated Defense Systems, Inc.	\$0	\$0	\$18,018	\$0
Invivodata, Inc.	\$0	\$0	\$35,578	\$0
IPC Inc.	\$0	\$0	\$3,121	\$0
Jackie Johnson	\$0	\$0	\$7,006	\$0
James & Rose Mary Perryman 1991 Trust	\$0	\$0	\$3,143	\$3,143
James L. Rutkowski, DMD & Associates	\$0	\$0	\$1,127	\$0
James T. Perryman, Jr.	\$0	\$0	\$1,744	\$1,744
Janet L. Hauge	\$0	\$0	\$1,744	\$0
JerrDan Corporation	\$0	\$0	\$16,449	\$0
Johnson Matthey Inc.	\$0	\$0	\$36,529	\$36,529
JTM Foods, Inc.	\$0	\$0	\$60,235	\$0
Kaolin Mushroom Farms, Inc.	\$0	\$0	\$3,088	\$3,088
Kathy S. Moore	\$0	\$0	\$1,744	\$0
Kit Solutions, Inc.	\$0	\$0	\$13,253	\$13,253
Kop-Coat Inc.	\$0	\$0	\$3,475	\$1,770
Koppers Inc	\$0	\$0	\$3,176	\$0
Layke Tool And Mfg. Company	\$0	\$0	\$26,610	\$52
Lifesensors Inc.	\$0	\$0	\$41,119	\$0
Linear Acoustic, Inc.	\$0	\$0	\$16,546	\$0
Locus Pharmaceuticals, Inc.	\$0	\$0	\$816	\$0
Long USA LLC	\$0	\$0	\$403	\$403
Maguire Products, Inc.	\$0	\$0	\$45,885	\$5,000
Maloney Plastics, Inc.	\$0	\$0	\$696	\$0
Mark A. Hanaway	\$0	\$0	\$772	\$772
Mary A. Julius	\$0	\$0	\$1,744	\$0
Maxim Integrated Products, Inc.	\$0	\$0	\$12,599	\$2,653
Maya Design Inc.	\$0	\$0	\$27,180	\$0
Maya Viz LTD	\$0	\$0	\$8,128	\$0
MCA Solutions, Inc.	\$0	\$0	\$18,611	\$4,224
Metco Manufacturing Co, Inc.	\$0	\$0	\$7,506	\$597
Microsemi Corp. - Montgomeryville (fka Advanced Power Technology RF Pennsylvania Inc.)	\$0	\$0	\$6,396	\$6,396
Mid-Market America, Inc.	\$0	\$0	\$42,879	\$12,880
Milton Roy Company	\$0	\$0	\$9,204	\$9,204
Nancy L. Dennison	\$0	\$0	\$1,744	\$0
Nanohorizons, Inc.	\$0	\$0	\$16,534	\$16
Nnose Technologies, Inc.	\$0	\$0	\$714,900	\$315,473
Neuronetics, Inc.	\$0	\$0	\$694,735	\$1,651
Neuronyx, Inc.	\$0	\$0	\$12,012	\$0

<i>Taxpayer Name</i>	<i>2007 Credit Awarded</i>	<i>2007 Credit Utilized¹</i>	<i>2005 & 2006 Credit Awarded</i>	<i>2005 & 2006 Credit Utilized¹</i>
Neville Chemical Company	\$0	\$0	\$1,744	\$0
NMS Labs, Inc. (fka National Medical Services, Inc.)	\$0	\$0	\$8,095	\$0
Novartis Pharmaceuticals Corporation	\$0	\$0	\$238,825	\$238,825
Novocell Semiconductor, Inc.	\$0	\$0	\$4,178	\$0
Nuventive LLC	\$0	\$0	\$3,558	\$2,846
NVIDIA Corporation	\$0	\$0	\$7,652	\$6,187
Octagen Corporation	\$0	\$0	\$14,073	\$0
Octagon Research Solutions, Inc.	\$0	\$0	\$55,360	\$55,360
Omega Flex, Inc.	\$0	\$0	\$3,591	\$0
P. H. Glatfelter Company	\$0	\$0	\$31,169	\$20,990
Padcom Holdings, Inc.	\$0	\$0	\$16,771	\$0
PA-Max, Inc.	\$0	\$0	\$2,091	\$1,245
PDQ Industries, Inc.	\$0	\$0	\$4,929	\$0
Penn Manufacturing Industries, Inc.	\$0	\$0	\$22,824	\$0
Pennco Tool & Die, Inc.	\$0	\$0	\$17,620	\$0
Pennlake Corporation	\$0	\$0	\$3,406	\$0
Performance Castings, Inc.	\$0	\$0	\$2,358	\$447
Perryman Enterprises, Inc.	\$0	\$0	\$362	\$0
Pfizer Inc.	\$0	\$0	\$2,655,910	\$2,655,910
Phenotech, Inc.	\$0	\$0	\$16,543	\$16,000
Philadelphia Tramrail Enterprises, Inc.	\$0	\$0	\$680	\$0
Pine Instrument Company	\$0	\$0	\$3,902	\$3,902
Polymer Molding, Inc.	\$0	\$0	\$4,183	\$4,183
Porter Instrument Company, Inc.	\$0	\$0	\$11,470	\$0
Powsus, Inc	\$0	\$0	\$970	\$0
Prodesco, Inc.	\$0	\$0	\$24,624	\$0
Proteopure, Inc	\$0	\$0	\$20,202	\$0
Puresyn Inc.	\$0	\$0	\$3,538	\$2,536
Quadrant EPP USA, Inc.	\$0	\$0	\$41,398	\$41,398
Raymond A. Pronto	\$0	\$0	\$41,905	\$41,905
Recigno Laboratories, Inc.	\$0	\$0	\$230	\$230
Redzone Robotics, Inc.	\$0	\$0	\$53,708	\$53,708
Renaissance Technologies, Inc.	\$0	\$0	\$6,446	\$0
Restek Corporation	\$0	\$0	\$23,249	\$0
Rheo Gene, Inc.	\$0	\$0	\$31,177	\$31,117
Richard L. Neff	\$0	\$0	\$3,819	\$3,819
RJ Lee Group, Inc.	\$0	\$0	\$47,047	\$47,047
Robert Bosch Corporation	\$0	\$0	\$20,845	\$0
Robert Mazza Inc.	\$0	\$0	\$2,777	\$0
Rohm and Haas Company	\$0	\$0	\$308,875	\$308,875
Russell T. Hanaway	\$0	\$0	\$772	\$0
S&W Race Cars & Components, Inc.	\$0	\$0	\$40,819	\$0
Sanofi Synthelabo Inc.	\$0	\$0	\$398,174	\$398,174
Scott M. Hanaway	\$0	\$0	\$772	\$0
Seegrid Corporation	\$0	\$0	\$76,157	\$14,319
SEI Investments Management Corporation	\$0	\$0	\$1,970,570	\$20,133
Service Link, Inc.	\$0	\$0	\$4,365	\$0
Shire Pharmaceuticals Inc.	\$0	\$0	\$434,290	\$434,290
Shirley Kemper	\$0	\$0	\$1,744	\$0
Spartech Polycom, Inc.	\$0	\$0	\$26,217	\$8,793
Starr Life Sciences Corp.	\$0	\$0	\$331	\$0
STMicroelectronics Inc.	\$0	\$0	\$24,297	\$24,297
Strobic Air Corporation	\$0	\$0	\$849	\$849

Taxpayer Name	2007 Credit Awarded	2007 Credit Utilized¹	2005 & 2006 Credit Awarded	2005 & 2006 Credit Utilized¹
Sunoco, Inc. (R&M)	\$0	\$0	\$6,387	\$6,387
Syandus Inc.	\$0	\$0	\$28,738	\$0
Sylvin Technologies, Inc.	\$0	\$0	\$36	\$0
Syngy, Inc.	\$0	\$0	\$72,164	\$0
T. C. Millwork Inc.	\$0	\$0	\$9,186	\$1,756
Techenable, Inc.	\$0	\$0	\$334	\$334
Technical Precision, Inc.	\$0	\$0	\$13,396	\$0
Techtrol Cyclonetics Inc.	\$0	\$0	\$26,314	\$8,350
Teikoku USA Inc.	\$0	\$0	\$3,568	\$3,568
Terre Hill Silo Company, Inc.	\$0	\$0	\$4,479	\$4,479
Terry L. Engel	\$0	\$0	\$5,238	\$0
Thar Technologies, Inc.	\$0	\$0	\$25,916	\$0
The Creative Touch, Inc.	\$0	\$0	\$14,156	\$6,268
The Magnus Group, Inc.	\$0	\$0	\$3,797	\$0
The Thermoclad Company	\$0	\$0	\$20,316	\$0
The Valspar Corporation	\$0	\$0	\$7,628	\$1,747
Theraquest Biosciences, LLC	\$0	\$0	\$37,386	\$0
Thermal Solutions Products LLC	\$0	\$0	\$6,356	\$0
TimeSys Corporation	\$0	\$0	\$203,818	\$0
UCI Pennsylvania, Inc. (fka Neapco, Inc.)	\$0	\$0	\$20,681	\$1,500
US Boiler Company, Inc.	\$0	\$0	\$5,513	\$1
USSC Group, Inc.	\$0	\$0	\$17,887	\$11,331
Valley Instrument Co., Inc.	\$0	\$0	\$8,591	\$4,416
Verizon Services Corp.	\$0	\$0	\$597,051	\$0
Vesuvius USA Corporation	\$0	\$0	\$6,184	\$0
Vicuron Pharmaceuticals Inc.	\$0	\$0	\$158,066	\$0
William Minton	\$0	\$0	\$4,365	\$4,365
Worldgate Service, Inc.	\$0	\$0	\$23,397	\$0
Worldwide Refractories, Inc.	\$0	\$0	\$82	\$82
X F Enterprises, Inc.	\$0	\$0	\$10,389	\$0
York International Corporation	\$0	\$0	\$128,551	\$0
Zaxel Systems, Inc.	\$0	\$0	\$52,984	\$18,444
Z-Band, Inc.	\$0	\$0	\$1,234	\$0
Zeigler Bros., Inc.	\$0	\$0	\$131	\$131
Zippo Manufacturing Company	\$0	\$0	\$119,766	\$0
TOTAL	\$40,000,000	\$0	\$70,000,000	\$38,862,115

Footnote:

¹ "Utilized" means that the tax credit has been applied in full or partial payment of a tax liability according to the records of the Department. If no tax liability exists for the tax and period where the credit has been applied or if previous tax credits exceed the tax liability, the utilized amount is shown as zero. Until a tax year has been closed, it is possible that the tax credits indicated as being utilized may still be transferred, sold or assigned at the option of the taxpayer. Unused credits that were sold or assigned are also included as utilized.

TECHNOLOGY CLUSTERS SHOW SIGNS OF PAYROLL GROWTH

Forecast is Optimistic for Continuing Upward Trend

As in past State of the Industry Reports, three years of data are compared in the categories of number of companies, number of employees, total annual payroll and average wages for each of five main technology clusters.

The five clusters have shown signs of improvement for 2005, the latest date for which complete statistical data was available.

However, because results are still mixed, there are few discernible general trends within this year's report. One exception is that total annual payrolls for the clusters have shown positive growth across the board. Average wages also have increased consistently throughout the industry clusters this report tracks.

Some subclusters, like software and hardware, also have shown decreases in the number of companies within the region. By way of another example, the bio research subcluster has shown declines in the number of companies, yet has posted a considerable net increase in employees and payroll, thereby further illustrating the lack of a clear-cut trend.

One clear exception is the aggregated environmental technology cluster which has posted gains in most categories.

Indeed, PNC Financial Services Group Chief Economist Stuart Hoffman rightly predicted that the economy as whole, and the technology industries in particular, would begin to show signs of growth.

Mr. Hoffman provides his forward-looking thoughts again in this year's report, and once again he is bullish on technology. He says that "overall economic conditions will be favorable for further growth in technology industries in 2006. Businesses remain willing to invest heavily in productivity-enhancing technology, business confidence continues to rise, and corporate balance sheets are healthier than they have been in a generation. Along with what should be an improving business climate in southwest Pennsylvania, these factors should contribute to further growth for our region's technology industries in 2006 against the backdrop of a longer-term outlook that remains promising."

The brighter spots reported upon in this edition show cause for us to be optimistic, too.

The following is a summary of the State of the Industry Report, commissioned by the Pittsburgh Technology Council with data compiled by the Carnegie Mellon University Center for Economic Development.

THE TOP LINE

Technology industry clusters within the 13 contiguous counties* of southwestern Pennsylvania tracked by this report every year include information technology, life sciences, advanced manufacturing, advanced materials and environmental technology.

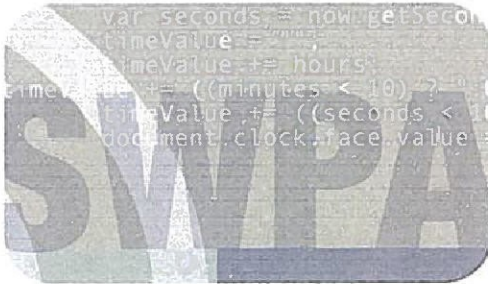
This printed version of the research contains data that is excerpted from the complete State of the Industry Report that can be found on the Pittsburgh Technology Council's Web site at:

http://news.pghtech.org/entry_form.cfm

We invite you to visit and gain a higher level of detail of the complex issues tracked on an annual basis.

* Counties include Allegheny, Armstrong, Beaver, Bedford, Butler, Cambria, Fayette, Greene, Indiana, Lawrence, Somerset, Washington and Westmoreland.

2005 = 4,096
2006 = 8,192
2007 = 16,384



Information technology in the Pittsburgh region covers businesses that design and make computer hardware and software and that provide telecommunications services and technologies. The performance of these three subcluster industries serve to mirror the overall pattern of the aggregated core IT cluster, including the significant gains made across the board in average wages. As an example, the average wage for the software subcluster in the seven-county metropolitan statistical area (MSA) is the highest in this report at \$75,109 a year.

HIGHLIGHTS

The **7,272 technology firms** tallied in the year 2005 represent more than **10.8 percent of all companies in the region.**

These firms employ more than **207,000** individuals and account for **17.5 percent of the area's overall workforce.**

The **\$10.8 billion total annual payroll** of technology and related companies represents more than **24 percent of the region's wages.**

HIGHLIGHTS

92 hardware firms within the 13-county region employ **7,636 people** with a total annual payroll of **\$392 million.** This subcluster reported gains in **average wages at six percent growth over the three-year measured period.**

805 software firms employ more than **9,300 people** with a total annual payroll of **\$684 million.** Although employment is down when measured over the three-year period, it rebounded slightly over the last year. The software subcluster continues to have the **highest average wage examined within this report at \$75,109** per year within the MSA, which has been solidified even more since the **three-year increase is in excess of five percent.**

673 telecommunications firms employ more than **15,800 people** with a total annual payroll exceeding **\$940 million** in the 13-county region.

Aggregated Information Technology Cluster

13 Counties

Year	Companies	Employment	Total Annual Payroll	Average Wages
2003	1,613	34,549	1,984,804,634	\$57,449
2004	1,583	33,526	2,051,252,425	\$61,184
2005	1,572	32,875	2,017,221,582	\$61,360
Percent change 2003 - 2005	- 2.5	- 7.7	+ 1.6	+ 6.8

For a complete list of NAICS codes for each subcluster, refer to the more comprehensive on-line report at http://news.pghtech.org/entry_form.cfm.

EMERGING CLUSTERS

Aside from the five main industry clusters that are featured in the State of the Industry Report, eight others are examined in some depth with broad overviews and historical perspective. To review these emerging clusters, visit http://news.pghtech.org/entry_form.cfm.

CYBERSECURITY

Southwestern Pennsylvania has become a center of excellence in cybersecurity, with a critical mass of talent and expertise at institutions like the Computer Emergency Response Team Coordination Center (CERT/CC) located at the Software Engineering Institute (SEI), the Pittsburgh High Tech Computer Crimes Task Force at the Pittsburgh offices of the FBI, Cylab at Carnegie Mellon University and private firms, like Red Siren Technologies, Congruity Technologies, InnovationsTech and VigilantMinds.

DATA STORAGE

With the increasing access by businesses and homes to high-speed fiber optic lines, more data is moving faster than ever before, which requires greater capacity for data storage.

Since Seagate Technologies moved their research arm to Pittsburgh in 1998, the company had set about attempting to pack 100 gigabytes of storage onto one square inch of disc. Seagate employs 160 people in Pittsburgh and controls 23 percent of the world's disc-drive market.

ELECTRO-OPTICS

Southwestern Pennsylvania is home to the Electro-Optics Center, the focal point for many of the nation's cutting-edge research initiatives including products for NASA and the Department of Defense. The Center is home to the Electro-Optics Alliance, with a roster of nearly 290 member organizations spanning industry, university and government organizations. Member companies include several high-profile defense contractors, such as Honeywell, ITT Industries, Lockheed Martin, Northrop Grumman, Raytheon, Rockwell and others. Regional member companies include II-VI Incorporated, ANALUX, Armstrong Laser Technology, Brashear, Caracal, ChemImage, DRS Technologies, RAPT Industries and Sabeus Sensor Systems, to name a few.

ENERGY TECHNOLOGY

When it comes to energy technology, Westinghouse put Pittsburgh on the map. In addition to pioneering countless technologies, including the application of alternating currents, the first fully electric range, the television cameras that made it possible to watch men land on the moon and revolutionary

research in batteries and materials, Westinghouse technology made our nuclear Navy possible. In fact, Westinghouse has been responsible for 40 percent of the world's nuclear technology.

After Westinghouse was broken up, many of its energy businesses have spun-off or been purchased by other companies, creating new opportunities in several technologies. At the same time, the use of clean, renewable energies has been growing.

ENTERTAINMENT TECHNOLOGY

Pittsburgh's role in bringing technological advances to the entertainment industry is legendary. In 1905, the film industry was born in Pittsburgh when the "Nickelodeon" became the world's first real movie theater. This early technology used carbide tanks to produce light and salt water to conduct the electric current, and a bag hung in front of the machine that caught the film after it ran through the projector.

Spearheaded by Westinghouse, KDKA became the world's first commercial radio station in 1920, and in 1954, WQED was the nation's first public television station.

Today, Americans spend more than \$150 billion on entertainment, and it's a leading export of the United States. For the most part, Pittsburgh's leading role has been as an exporter of first-rate actors, writers, producers and the newest addition to the entertainment industry, a master's degree in entertainment technology.

NANOTECHNOLOGY

The emerging fields of nano and micro scale science, engineering and technology afford the ability to work at the molecular level, atom by atom, to create large structures with fundamentally new properties and functions – essentially providing unforeseen powers to understand and control the basic building blocks and properties of all natural and man-made things.

Recent progress in the measurement, modeling and manipulation of matter and phenomena at the scale of 1 to 100 nanometers has us on the verge of revolutionizing information processing, data storage, sensors, power generation, materials, environment, robotics and medicine.

Since Pittsburgh is home to the headquarters of leading global materials companies, such as Alcoa, Bayer MaterialScience, PPG Industries and U.S. Steel, the region is well positioned to be a major player in materials for nanotechnology.

In fact, the Pittsburgh Technology Council leadership has inaugurated a new initiative that will combine the strengths of the four Fortune 500 companies listed above, along with others, as part of the Pennsylvania NanoMaterials Commercialization Center. The mission of the Center is to expedite new nanomaterials for commercialization.

11	14,500	37,500	52,500	33	36	41
13	12,500	42,500	52,500	39	42	44
52	12,500	42,500	52,500	33	38	46
48	32,500	42,500	47,500	33	37	46
11	16,250	40,000	48,750	33	36	42
34	42,500	51,500	66,250	34	39	45
39	12,500	17,500	47,500	33	40	44
	37,500	47,500	62,500	37	49	50
	52,500	72,500	102,500	40	48	54
	42,500	62,500	77,500	42	53	60
	17,500	47,500	55,000	33	37	45



MICROELECTROMECHANICAL SYSTEMS

Southwestern Pennsylvania also is poised to be on the forefront of microelectromechanical systems (MEMS). The MEMS Industry Group is based in Pittsburgh, and Carnegie Mellon University's Center for Interdisciplinary Nanotechnology Research has become a hub for collaboration and research. Key MEMS companies include Akustika, Xactix, Verimetra, Bridge Semiconductors, IC Mechanics and others.

ROBOTICS

The worldwide robotics market surpasses \$8 billion. As the demand for non-industrial, agile or mobile robots increases, southwestern Pennsylvania will be in a good position to develop an industry base, due to unparalleled research resources. These resources include the Robotics Institute at Carnegie Mellon University, which encompasses The Center for the Foundation of Robotics, The Center for Integrated Manufacturing and Precision Systems, The Center for Healthcare Robotics, the World Robotics Center, the Vision & Autonomous Systems Center and the National Robotics Engineering Consortium. The Technology Collaborative also takes as its mission to develop synergistic clusters that take advantage of the region's world-class assets in robotics, advanced electronics, cybersecurity and other digital technologies. Regional companies include Red Hat Robotics, McKessonHBOC Automated Healthcare, Aethon, Surgica, Applied Perception and SeeGrid.

SPECIALTY METALS

Increasingly, the term "specialty steels" is being replaced by "specialty metals" to reflect more accurately the range of products made by various manufacturers in the industry. Specialty metals include nickel-based alloys, titanium, silicon, chromium, iron, manganese, molybdenum, sulfur, selenium, tantalum, niobium, vanadium, tungsten, niobium cobalt, hafnium and zirconium. These elements are added for purposes of variously increasing corrosion, scaling or heat resistance, welding performance, tensile strength, or to enhance machining, cold chiseling or surface finishing. As a matter of industry convention, if an alloy component exceeds 30 percent of the total composition of the product, it is no longer considered an alloy, but is referred to as the alloy's metallic base. Hence, the metal high performance components is called a nickel-based alloy, rather than nickel-steel.

The domestic specialty steel industry is a capital intensive, highly competitive industry that is modern and efficient and a recognized global leader in the development and implementation of new and innovative product and process technology. As Pittsburgh regional companies compete successfully on

a global basis, exporting significant quantities of products, particularly those in the more highly valued end of its overall product distribution. The growth in demand for specialty metals and specialty steel products exceeds five percent per year due to product improvements and increased global lifestyle expectations.

SUPERCOMPUTING

Supercomputing can be described as a search for ever faster, more powerful computing capabilities via groundbreaking advances in hardware, software, memory, data storage and networking equipment. As one of the first public research supercomputing facilities in the U.S., the Pittsburgh Supercomputing Center (PSC) has become a leading edge site in the National Science Foundation's PACI and TeraGrid programs, which provide the country's academic researchers with support for and access to high-end computing infrastructure and research. Among the three remaining NSF-funded supercomputing centers, Pittsburgh maintains a reputation for providing the "big iron" — the largest and most powerful systems, along with particular expertise in maximizing the productivity of these systems. Last year, the PSC provided more than 60 percent of the computing time used through NSF.

SYSTEM-ON-A-CHIP

System-on-a-Chip (SoC) technology integrates and packages all of the necessary electronic circuits and parts for a system onto one single integrated circuit, known as a microchip. The Technology Collaborative is a strategic economic development initiative established to foster growth across the region's emerging cluster and the companies that are developing and employing SoC and related technologies for networking and multimedia applications. Notable southwestern Pennsylvania companies in this emerging cluster include Akustika, Bridge Semiconductor, Cadence, Cisco Systems, Fairchild Semiconductor, IBM, Laurel Networks, NetApp, Oki Semiconductor, Philips, Marconi and Sony.

TISSUE ENGINEERING

Tissue engineering is the development and manipulation of laboratory-grown molecules, cells, tissues or organs to replace or support the function of defective or injured body parts. Several research institutes are defining the region as a premier center for excellence in this emerging cluster. They include the McGowan Institute for Regenerative Medicine, the National Tissue Engineering Center, the University of Pittsburgh Department of Bioengineering, the Bone Tissue Engineering Initiative at Carnegie Mellon University and the Pittsburgh Tissue Engineering Initiative. Cook Myosite, Promethean Life Sciences and Stemion are some of the region's leading companies specializing in tissue engineering.

Life Sciences

Since Pittsburgh earned its reputation for being a world-renowned organ transplantation center, there has been significant growth of newer, thriving commercial ventures that are engaged in a wide spectrum of the life sciences cluster.

Medical instruments and devices, cell research, tissue engineering and biomedical informatics comprise a widening list of life sciences disciplines in which the Pittsburgh region has a significant stake. The formidable research programs at southwestern Pennsylvania universities provide the genesis of many of the commercial ventures in the region's life sciences. This is especially true at the University of Pittsburgh, which ranked ninth nationally among the top universities funded through the National Institutes of Health.

According to the Center for Workforce Information and Analysis of the Pennsylvania Department of Labor and Industry, many component industries of this cluster are expected to grow employment in the state by nearly 15,000 by the year 2008. Growth industries identified by the Center include drugs, agricultural chemicals, measurement and control devices, medical instruments and supplies, ophthalmic goods, research and testing services.

The Health Services subcluster is an important element of the life sciences industry cluster. Hospitals, in particular, are essential sources for the generation of new ideas and talent, and they are a crucial resource for clinical trials and non-laboratory experience. There are no successful life sciences clusters in markets without high-quality hospitals.

The region's biological research subcluster was robust in this year's report. The total annual payroll, average wage and the people employed in this subcluster grew markedly over a three-year period.

While the number of companies within the instruments and devices subcluster increased by only a few firms, average wages increased significantly (more than 16 percent in the MSA.)

The pharmaceuticals subcluster posted gains in both total annual payroll and average wages, while the number of companies and employment flagged.

Aggregated Life Sciences Cluster

13 Counties

Year	Companies	Employment	Total Annual Payroll	Average Wages
2003	3,198	114,695	\$5,234,209,948	\$45,636
2004	3,229	115,144	\$5,545,566,457	\$48,162
2005	3,224	117,065	\$5,862,104,336	\$50,075
Percent change 2003 - 2005	+0.8	+2.0	+12.0	+9.7

HIGHLIGHTS

Including the Health Services subcluster, there are **3,200 life sciences firms** throughout southwestern Pennsylvania employing more than **117,000 people** with a total annual payroll in excess of **\$5.8 billion**.

The 13-county region's Health Services subcluster encompasses **2,839 companies** employing more than **101,000 people** with a total annual payroll of **\$4.8 billion**.

Although employment was down by more than 10 percent over three years, the total annual payroll for Instruments and Devices **increased more than four percent**, and **average wages increased by more than 16 percent**.

The region's Medical Equipment subcluster experienced an **increase of 7.5 percent in the number of companies** over three years. The total annual payroll, number of employees and average wages have declined to the lowest point in the three measured years.

The **207 companies** in the region's Bio Research subcluster, employing more than **8,100 people** are responsible for a **\$589 million total annual payroll**, which represents an increase of nearly 35 percent over three years.

Though employment was down by more than five percent in the MSA's Pharmaceuticals subcluster, **the total annual payroll increased more than eight percent to more than \$29 million** over three years' time, and the **average wage increased more than 14 percent**.

Advanced Manufacturing

ALERT NO. 1477

Manufacturing meets information technology. This cluster encompasses industries that typically are largely automated and that have a high degree of process controls, such as computer numerical control systems, automation and robotics.

This cluster also encompasses those businesses that develop and install these systems for other manufacturers.

By way of examples of advanced manufacturing companies, II-VI (pronounced two-six) Incorporated and its divisions and subsidiaries utilize expertise in synthetic crystal materials growth, optics fabrication and electronics component manufacture to create high-tech products for applications in the medical, military, security and aerospace industries. Founded in 1971, II-VI Incorporated is headquartered in Saxonburg, PA, and maintains manufacturing facilities, distributors and agents with nearly 1,700 employees worldwide. The company was named the advanced manufacturing category leader at the Pittsburgh Technology Council's annual Tech 50 awards in 2006.

Siemens is a fabless manufacturer of low-cost "smart" micro-electromechanical systems sensors, actuators and switches. The company's components promise to be a ubiquitous part of the interface between the worlds of mechanical forces, human movement, RF signals and digital links.

In addition, Eaton Corporation, through its Cutler-Hammer division, manufactures a wide range of electrical control, automation and power distribution equipment. These products include, but are not limited to variable-speed drives, switches, circuit breakers, load centers and panelboards, transformers and microprocessor-based control and protection devices. Electrical equipment was reported by Deloitte to be one of eight "driver" industries located in southwestern Pennsylvania.

HIGHLIGHTS

Although there is a net decrease in the number of advanced manufacturing companies over a three-year period in both the 13-county region and the MSA, the **average wage increased remained on the increase to more than \$47,000 a year.**

The total annual payroll also **increased in the 13-county region** and now stands at more than **\$1 billion.**



Advanced Manufacturing Cluster				13 Counties
Year	Companies	Employment	Total Annual Payroll	Average Wages
2003	903	22,242	\$1,001,567,094	\$45,030
2004	860	21,969	\$1,035,757,328	\$47,146
2005	849	21,524	\$1,012,292,188	\$47,030
Percent change 2004-2005	-5.9	-3.2	+1.0	+4.4

For a complete list of NAICS codes for each subcluster, refer to the more comprehensive on-line report at http://news.pghtech.org/entry_form.cfm.

The University of Pittsburgh Cancer Institute (UPCI) received a total of \$149 million in research grants and is ranked 11th in funding from the National Cancer Institute. The UPCI is ranked 12th among U.S. News & World Report's "Best of the Best" cancer programs in the nation for 2006.

$2^1 = 2$	$2^{10} = 1,024$
$2^2 = 4$	$2^{11} = 2,048$
$2^3 = 8$	$2^{12} = 4,096$
$2^4 = 16$	$2^{13} = 8,192$
$2^5 = 32$	$2^{14} = 16,384$
$2^6 = 64$	



The advanced materials cluster consists of rubber, plastics and chemicals, and the weak results in these component subclusters mirror the advanced manufacturing cluster as a whole. This can be attributed directly to the level of factory orders for raw feedstock or finished goods during the measured period.

Southwestern Pennsylvania is rooted with a mix of large, international chemical and materials companies, in addition to small- to mid-sized firms supplying an array of products and services. The region's largest players include: Bayer Corporation, with its NAFTA headquarters in Pittsburgh; PPG Industries, a global supplier of coatings, glass, fiber glass and chemicals, NOVA Chemical's Beaver Valley production plant, Neville Chemical and recent Bayer spin-out, Lanxess.

Locally, Bayer MaterialScience is one of the world's largest producers of polymers and high-performance plastics. Its innovative developments in coatings, adhesives, insulating materials and sealants, polycarbonates and polyurethanes are significant components for the automotive, construction, electrical and electronics, household, sports and leisure industries. The company supplies 25 percent of the world's polyurethane raw materials.

Headquartered in Pittsburgh, and with 120 production facilities worldwide, PPG is a leading manufacturer of architectural, industrial, automotive, aerospace and packaging coatings, as well as a global supplier of fine chemicals, silicas, chlor-alkali and derivatives, glass and fiberglass.

NOVA Chemical's Beaver Valley plant has the capacity to manufacture more than 400 million pounds of plastic resins each year. NOVA's resins are turned into a number of products, ranging from food packaging to automotive interior parts. Its Styrenics Technology Center includes an applications lab and two pilot plants for advanced R&D and testing.

Neville Chemical Company is a manufacturer of synthetic hydrocarbon and coumarone-indene resins. The company's resins are blended into a wide range of quality products, including printing inks, adhesives and sealants, rubber goods, paints, coatings and concrete cure.

Even smaller companies significantly contribute to the region's reputation as a top chemicals center. Westmoreland County-based Ranbar Technology is a manufacturer of custom and commodity coating resins for architectural and industrial coatings with specifications more restrictive than industry standards. Its product line includes more than 100 different resins and finishes, including a complete line of environmentally friendly water-reducible resins.

Even though the number of chemicals companies decreased over the three-year period, the number of employees, total annual payroll and average wages rose.

HIGHLIGHTS

The weakness across the board within the plastics and rubber subcluster is the deciding factor for the aggregated cluster's steep declines in all measures with the exception of the average wages. The **average wage** within the entire cluster in the MSA gained less than half of one percentage point over the three-year period, and it now stands at a little more than **\$54,000 per year**.

Chemicals is a bright spot within this cluster with some smart gains everywhere; the chemicals subcluster posted **total annual payroll gains of nearly 13 percent to \$241 million**.

The aggregated cluster's **total annual payroll now stands at \$570 million for the MSA**.

Aggregated Advanced Materials Cluster				13 Counties
Year	Companies	Employment	Total Annual Payroll	Average Wages
2003	285	14,891	\$759,239,334	\$50,986
2004	263	12,565	\$618,331,408	\$49,211
2005	266	12,322	\$630,998,285	\$51,209
Percent change 2003-2005	-6.6	-17.2	-16.8	+0.4

Environmental Technology

During the period following World War II, it became apparent that the prosperity of Pittsburgh's industrial heritage also claimed a fairly heavy environmental toll. The environmental problems that were a holdover from this era needed to be tackled, and the lessons learned became the basis of the region's environmental technology capabilities.

Leading environmental firms continue to reinvent the industry model. They are embracing strategies of consolidation, diversification and reconfiguration of products and services. Globalization also is a strategy that is being embraced, as other countries, most notably Russia, China and Brazil, recently have looked to Pittsburgh for help in addressing some of these same challenges.

The environmental technology cluster is the only one in this report that experienced increases across the board for both the MSA and the broader 13-county region, thereby completely reversing a negative trend during the past five years.

The David L. Lawrence Convention Center in Pittsburgh is the world's largest green building of its type.

Pittsburgh currently is one of the nation's leading cities in green building design, as designated by the Green Building Alliance, based upon the fact that it has 37 Leadership in Environmental and Energy Designs (LEED) registered or certified buildings totaling 3.7 million square feet.

HIGHLIGHTS

The total annual payroll for this cluster **increased nearly 18 percent** across 13 counties, posting a total annual payroll at \$2 billion.

Average wages between the MSA and the 13-counties grew to almost parity at **more than \$61,700 per year**.

Over the three-year period, the **total annual payroll** in the Environmental Equipment subcluster **grew almost 46 percent** in the MSA, and average wages now stand at \$55,300.

Despite the decrease in the number of employees in the Remediation and Waste Management subcluster, the average wage in the MSA **nearly five percent** over the prior three-year period and **stands at \$46,427 a year**.

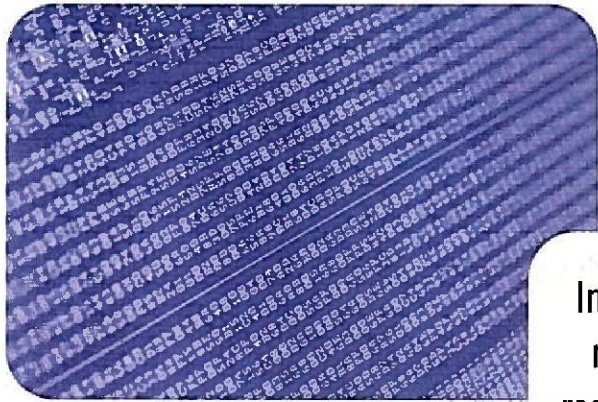
For a complete list of NAICS codes for each subcluster, refer to the more comprehensive on-line report at http://news.pghtech.org/entry_form.cfm.

Aggregated Environmental Technology Cluster				13 Counties
Year	Companies	Employment	Total Annual Payroll	Average Wages
2003	1,635	29,845	\$1,621,455,347	\$54,329
2004	1,620	31,283	\$1,772,728,414	\$56,668
2005	1,578	32,000	\$1,905,921,777	\$59,560
Percent change 2003 - 2005	- 3.4	+ 7.2	+ 17.5	+ 9.6

OTHER GROWTH INDICATORS

University Research and Development

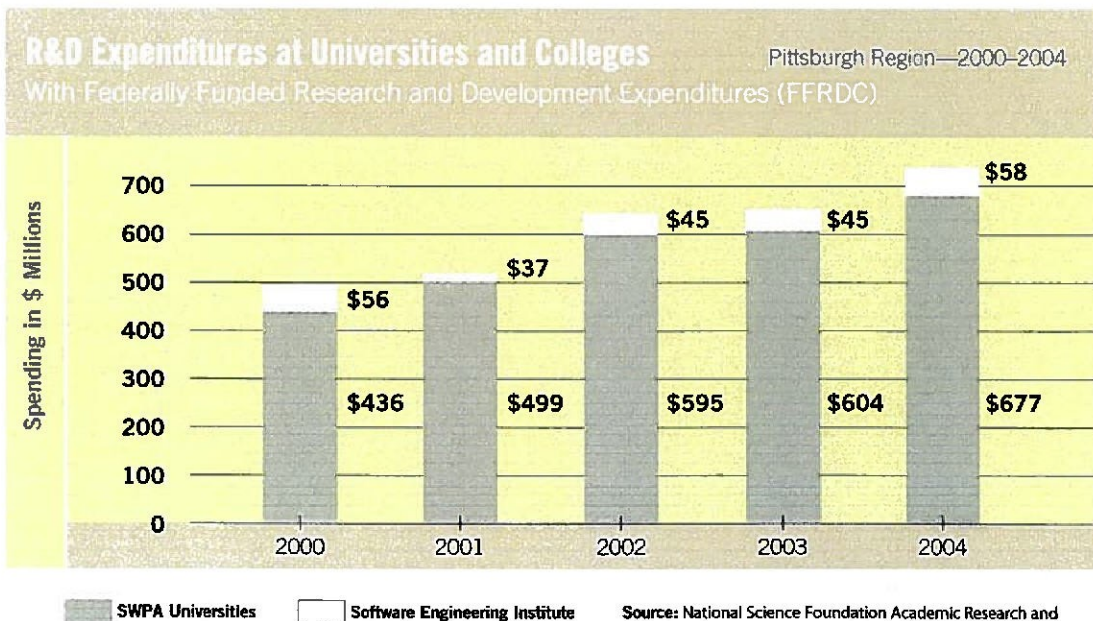
A region's technology economy is described by a variety of other indicators beyond the number of companies, jobs and wages. This section illustrates the other important measures that help influence southwestern Pennsylvania's strength and pace of technology growth.



The level of research and development spending at local universities and research centers can have a great impact on the development and success of technology firms. Throughout the United States, there are strong examples of positive links between research universities and high technology industries, especially since they both are involved in drawing large amounts of investment capital and talent.

Within this context, it is significant that Pittsburgh is home to two of the largest research universities in the region, Carnegie Mellon University and the University of Pittsburgh. Other institutions that have contributed to research, but on a lesser scale, include Duquesne University and Indiana University of Pennsylvania.

In 2005, the University of Pittsburgh ranked ninth among the top 100 U.S. universities receiving funding from the National Institutes of Health. The university received \$385.7 million for 969 grants that year.



Source: National Science Foundation Academic Research and Development Expenditures Fiscal Year 2004 Web Caspar. Data includes Carnegie Mellon, Duquesne University, Indiana University of PA, and the University of Pittsburgh. The Software Engineering Institute is the only FFRDC located in the region.

Science and Engineering Graduate Students

The number of science and engineering students that any region's colleges and universities graduate each year continues to be an important trump card in attracting and expanding technology development. Companies wishing to establish a presence in any given locale will examine the number of graduate students produced by nearby science and engineering departments as a ready source of technology talent.

HIGHLIGHTS

The region has shown steady growth in university research and development expenditures with **\$735 million in spending in 2004, a gain of 49 percent** over the five-year period beginning in 2000.

Expenditures at Carnegie Mellon's Software Engineering Institute, the region's lone Federally Funded Research and Development Center (FFRDC) were **\$58 million**, higher than any other year, and a **56 percent increase since 2001** levels.

The region's growth in R&D spending appears to be fueled principally by research and development activity in the life sciences, mostly at the University of Pittsburgh. The share of total **R&D spending in the life sciences** at regional colleges and universities has been **higher than 60 percent every year since 2000**.

HIGHLIGHTS

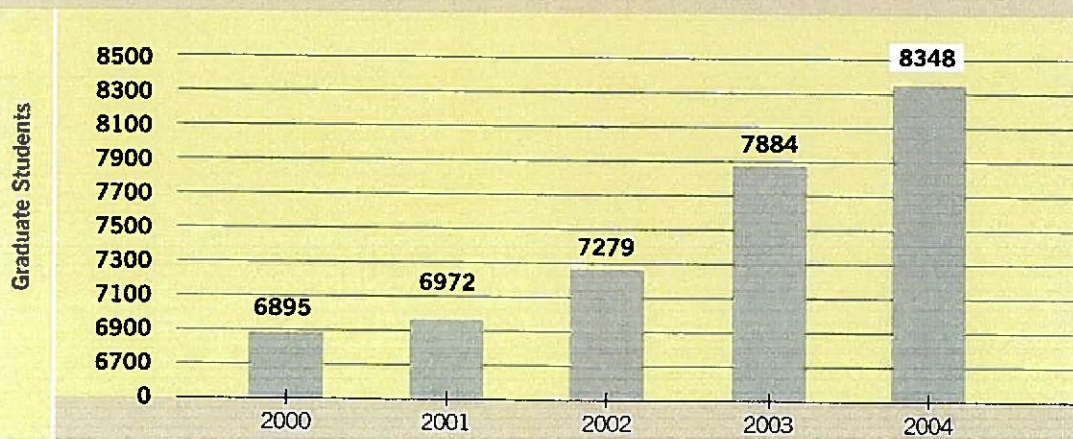
Altogether, six southwestern Pennsylvania universities accounted for **8,348 science and engineering graduate students in 2004**, the last year for which complete data is available. This is the **highest total since reporting began in 1991**, and represents **464 more students than in 2003**.

Of 33 Pennsylvania colleges and universities offering science and engineering degrees, the University of Pittsburgh was **ranked second** in total graduate students with **3,820**, accounting for **46 percent of the 13-county totals**.

Carnegie Mellon University ranked fourth in the state with **3,820**, accounting for **46 percent of the regional total** in 2004.

Duquesne University and Indiana University of Pennsylvania accounted for a combined nearly **13 percent** of all science and engineering graduate students.

2000-2004 13 Counties of Southwestern Pennsylvania
 Science & Engineering Graduate Students



Source: National Science Foundation

University-based Technology Transfer

University technology transfer activity represents the vehicle by which science and technology developed at the universities is translated into commercial activity. As such, technology transfer is a vital component of regional economic development. There are four traditional measures of technology transfer that are examined here:

- **Patents**, which represent the discoveries that have sufficient commercial value
- **Licenses and Options**, which are one means by which established companies access these discoveries
- **License Income**, because it measures the importance or value of the discoveries that are licensed
- **Start-up Companies**, because they are an increasingly important vehicle for taking university research to market.

Taken together, these measures are an indication of the value that is perceived from university research. At the very least, they represent inputs that can result in outcomes, such as company formation, job creation and wealth creation. In order for a region to capture the benefits of university research, there must be the capacity to adapt and apply the knowledge from basic and applied research to commercial products and processes. This absorption requires strong linkages between the universities and corporations that have product development and commercialization capacity and which offer employment and advancement opportunities for the technologically skilled workforce produced by the universities.



HIGHLIGHTS

Both Carnegie Mellon University and the University of Pittsburgh performed close to or **well above the national average in all categories** in 2004, with the exception of license income received. Licensing income for U.S. universities tends to fluctuate on the payments of a small number of highly successful licenses.

In comparing patents issued to 157 other universities throughout the U.S., **Carnegie Mellon ranked in 15th place; the University of Pittsburgh was ranked 19th** for 2004.

With respect to the ranking in the number of startups, **Carnegie Mellon University's ranked 36th nationwide with four startups**, and the **University of Pittsburgh was ranked 13th with 10 startups**.

Technology Transfer in Southwestern Pennsylvania 2000 - 2004

Year	Licenses & Options Executed	Gross License Income	Patents Filed	Patents Issued	Start-up Companies
2000	45	\$5,549,291	149	67	9
2001	38	\$3,270,777	133	76	8
2002	52	\$5,042,277	142	55	9
2003	71	\$5,678,697	172	44	10
2004	75	\$8,597,082	113	93	14

Venture Capital

SBIR AWARDS. CONT.

HIGHLIGHTS

In 2005, total regional **SBIR award funding declined 29 percent.**

A record year of more than \$13 million was awarded in 2004, a 17 percent increase over the previous year.

The Department of Health and Human Services continued its decade-long tradition of awarding the most funding (an average of **\$5 million annually**) to the region's companies.

Seed, start-up or early-stage venture capital typically is sought by new or small firms when it has an innovative product with high earnings potential. Monitoring the flow of venture capital can provide valuable insights into high technology industries or technology-oriented economies, because more than half of all venture capital investments are made within high technology-related industries.

HIGHLIGHTS

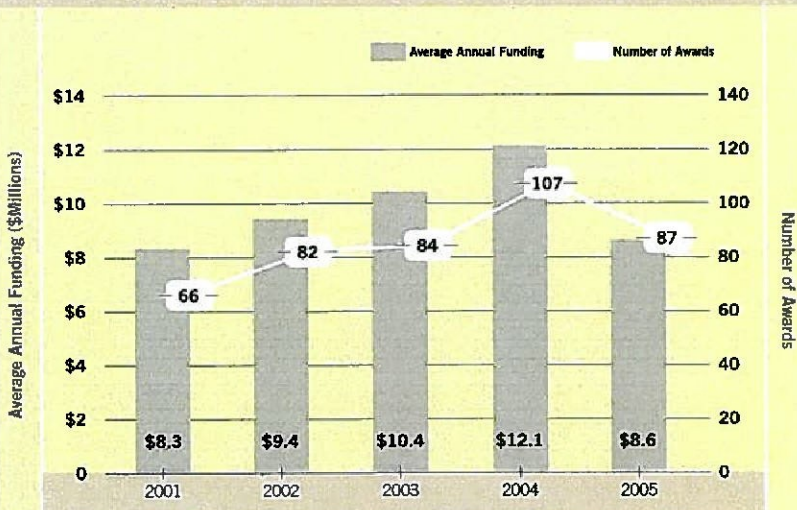
Total venture capital investment has been restated this year to exclude company buyouts, which were present in previous reports.

The single largest sector receiving the **highest share (48 percent) of the region's venture capital in 2006** involved energy-related companies, mainly as a consequence of a large investment (approx. \$100 million) in Targe Energy LLC.

Computer and communications-related products and services combined received **30 percent of the region's venture capital in 2006.**

Average Annual SBIR Funding (All Agencies)

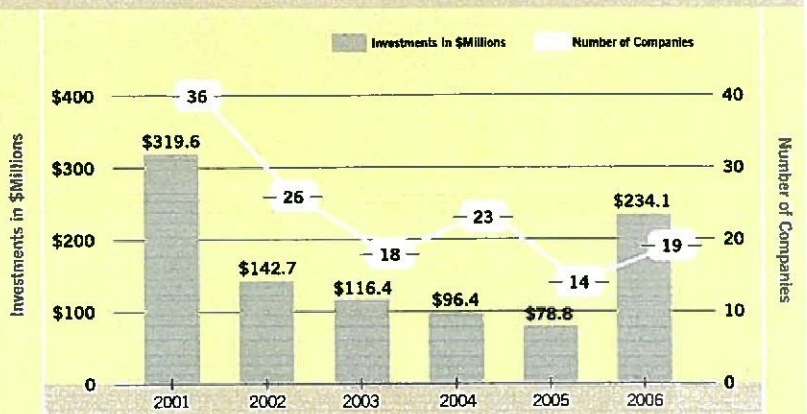
2001-2005—13 Counties, Southwestern Pennsylvania



Source: RAND Radius Database

Venture Capital Disbursements (2001-2006)

Pittsburgh MSA



Source: PWC MoneyTree, NVCA and Thomson Financial

Incorporations

E. ACTION PLAN	14	I
6. TEAM MEMBER DETAILS	21	2
H. REFERENCE SOURCES	28	2
I. FINANCIAL ANALYSIS WORKSHEETS		

The rate of incorporation is an important indicator of the current and future health of a region's economy. A relationship exists between the creation of new businesses and future job growth. Furthermore, new incorporations signify a favorable business climate and conditions that favor risk taking.

When examining the total number of incorporations per 10,000 in population, Allegheny County, although a clear leader, is not the only player in the field. The following chart shows Butler County once again as a close second, with Lawrence County close behind. It is interesting to note Lawrence County uncharacteristically surpassed Westmoreland County in this measure, all of which indicates that there is at least a threshold level of business activity throughout the region.

continued >>

HIGHLIGHTS

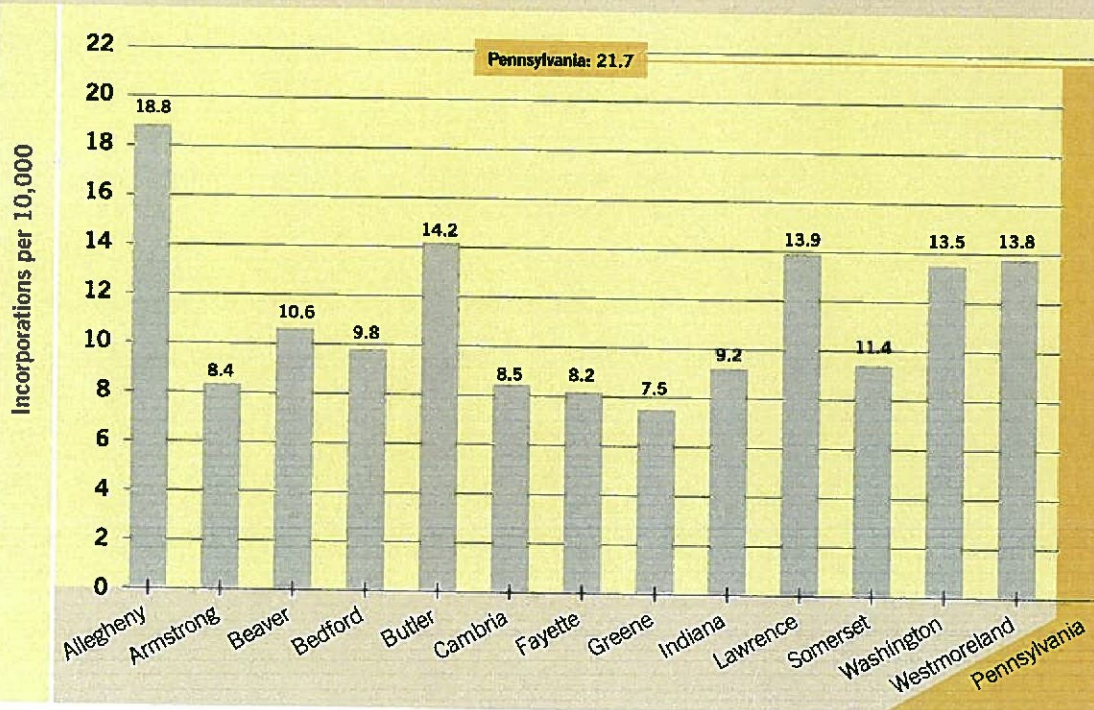
Note: 2004 was the latest year that data was available from the Pennsylvania Department of State.

New business incorporations in the year 2004 for the 13-county southwestern Pennsylvania region **totaled 4,275.**

Allegheny County led the region with **2,357 incorporations** or **55 percent of the region's total.**



Year 2004 Incorporations per 10,000 Residents, by County



Source: PA Department of State. Totals include Domestic and Foreign Professional and For-Profit Incorporations

$2^2 = 4$	$2^{10} = 1,024$
$2^3 = 8$	$2^{11} = 2,048$
$2^4 = 16$	$2^{12} = 4,096$
$2^5 = 32$	$2^{13} = 8,192$
$2^6 = 64$	$2^{14} = 16,384$
$2^7 = 128$	$2^{15} = 32,768$

Initial Public Offerings

INCORPORATIONS, CONT.

However, the rate of business incorporations per 10,000 residents for the region compares weakly with the state as a whole. The incorporation rate of southwestern Pennsylvania's 13 counties (14.7 per 10,000) continued to trail the state's (21.7 per 10,000) in 2003. Allegheny County's rate of 18.8 was the only county approaching the state's incorporation rate. The region has trailed the state in the rate of incorporations since at least 1990.

Not surprisingly, the Pittsburgh region also trailed the state in new business or establishment births as a percentage of total establishments (9.9 percent) for 2001 – 2002, the latest year for which complete data was available.

Likewise, the commonwealth of Pennsylvania trailed the nation in this measure during the same period. Pennsylvania as a whole continues to lag most other states, and during 2001 -2002, the commonwealth ranked 47th of all states in the percentage change of business establishments due to new company formations.

Pennsylvania's percentage change in establishments due to new company formations was 10.2 for the measured year; by contrast the nation as a whole was 12.4 percent

When a business has grown to a point where it has a solid product line and a competent management team, a large infusion of new capital often is needed for the firm to expand further and secure a significant market share. Conducting an initial public offering (IPO) is one option that many firms consider at this stage, and it had been the preferred exit strategy that allowed venture capital firms to get the return on their initial investment. Since the dot.com crash, the IPO option has declined in popularity, although it is gaining momentum nationally.

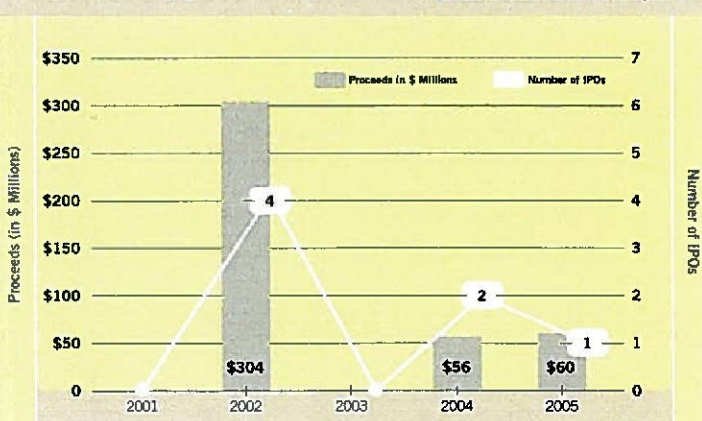
This heightened business activity benefits the region as well, but not only from a financial standpoint. Any metropolitan area that can sustain a significant share of IPOs tends also to be identified as a region that is economically vibrant.

HIGHLIGHTS

There was only one IPO in southwestern Pennsylvania in 2005, including Portec Rail Products and Atlas America, generating **total proceeds of more than \$65 million.**

Compared to the rest of U.S., the Pittsburgh region remained even with the state in 2005, but it trailed the nation in proceeds per capita.

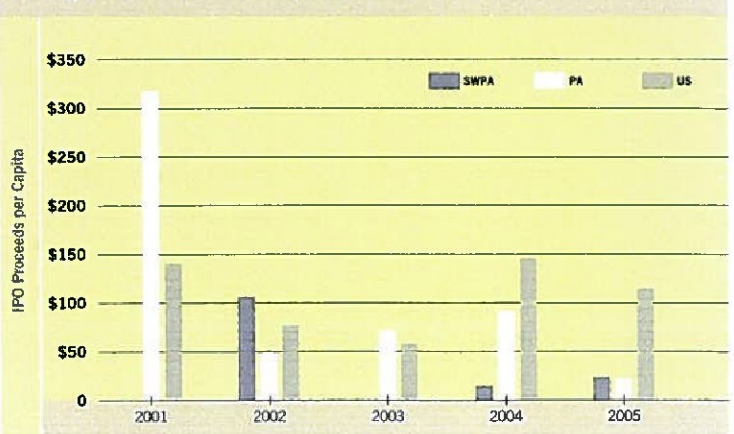
Initial Public Offerings, 2001 – 2005 13 Counties, Southwestern Pennsylvania



No Regional IPOs in 2001 or 2003

Source: Securities Data Corp/Thomson Financial, and Hoover's Inc.

Per Capita Proceeds from IPOs, 2001–2005



No Regional IPOs in 2001 or 2003

Source: Securities Data Corp/Thomson Financial, and Hoover's Inc.

CHALLENGES AND OPPORTUNITIES

The region's technology clusters have become a significant part of the southwestern Pennsylvania economy. A recent analysis of 315 metropolitan areas by the Milken Institute reveals that 65 percent of regional economic success is directly related to presence and growth of technology industries. Technology is critical for both mature, established companies, as well as emerging industries.

The challenges to the growth and success of these industries are outlined below and closely mirror research reports prepared for the Greater Oakland Keystone Innovation Zone (GO KIZ) by The Milken Institute and Battelle Memorial Institute, in which they rate the Pittsburgh region nationally and in relation to selected peer and competitor regions.

These challenges perennially have helped to define the mission of the Pittsburgh Technology Council, and the initiatives described in the following pages highlight how the Council has answered the call.

These challenges include:

- continuing workforce education and development (K through 12, post-secondary, continuing education, talent development, attraction and retention)
- ensuring entrepreneurial vitality (improving the rate of business births)
- improving the regional and state business climate (lowering taxes)
- improving the availability of risk capital

WORKFORCE EDUCATION AND DEVELOPMENT

The Pittsburgh Technology Council, along with affiliate organization Catalyst Connection, have designed and implemented a number of vital and successful initiatives to develop, attract and retain highly qualified talent in the Pittsburgh region.

Adventures in Technology is a business, education and community partnership that engages high school students in an eight-week hands-on project to design and build a product or to re-engineer an existing product, process or system for a local company. During the last session, 20 businesses and 20 secondary schools (including vocational schools), encompassing 200 students, participated.

In 2007, this program has been expanded to include the region's community college students and students across Pennsylvania in York and Philadelphia.

The Education Network is an industry network within the Pittsburgh Technology Council that was launched in September of 2004. With 27 colleges, universities and trade schools as technology Council members, in addition to relationships with 70 regional school districts, the role of the education network is to act as a bridge between academia and industry. It does this by

providing events and services tailored for the education community within southwestern Pennsylvania. Many of these activities provide avenues to expand local internship programs; to conduct networking opportunities among education and industry professionals; to expand partnership opportunities and to enhance the visibility of our regions educational institutions. The network maintains a committee of advisors from local school districts, college, universities and industry executives.

Internship services provided by the Council and Catalyst Connection include a comprehensive package of offerings for companies that engage in internships for undergraduates in southwestern Pennsylvania. Services include job posting, resume screening, targeted recruiting, mentoring and outcome evaluation. Nearly 100 businesses throughout southwestern Pennsylvania took advantage of these services during the last fiscal year.

The Student Membership Program in the Council promotes early interest in career opportunities within the technology clusters in southwestern Pennsylvania. Benefits of the student membership promise post-secondary students one-on-one interaction with business professionals, company tours, professional development seminars, a bi-monthly career newsletter, discounted admission rates at Council events, opportunities to build a professional network and access to industry contacts that they cannot get anywhere else.

Companies like Ariba, Bayer, Blattner Brunner, Cellomics, Dick's Sporting Goods, Fed Ex, GlaxoSmithKline, McKesson, PNC Bank and Union Switch and Signal have conducted highly successful and highly attended tours. In addition, during 2006, 17 colleges and universities hosted a professional development series on career development for technology students, and nearly 350 students attended. For more information, visit <http://www.pghtech.org/membership/students.asp>.

Teachers Teaching Teachers is professional development convocation where for southwestern Pennsylvania's elementary, middle and high school teachers learn best practices, cutting edge teaching methods and technology integration from master teachers. Key topics of the conference deal with integrating technology for differentiated instruction, for inquiry-based learning and to improve students' reading, writing and math skills. Teaching methods for life and environmental sciences also are featured prominently at the conference. In 2006, 200 teachers and 22 presenters attended the event.

Three Rivers Educational Technology Conference (TRET) presents topics and workshops that enable professional educators to possess the information and communication technology skills necessary to prepare students for global opportunities using digital technologies. Through ongoing involvement and high-impact professional development experiences, TRET builds a community of lifelong learners that enables educators to connect students with technology tools for the future. Topics include data collection,

34	42,500	51,500	66,250	34	39	45
39	32,500	37,500	47,500	33	40	44
	37,500	47,500	62,500	37	44	50
	51,500	71,500	102,500	40	48	54
	42,500	62,500	77,500	42	53	60
	37,500	47,500	57,500	43	37	45

digital media, visual mapping, podcasting, blogging, handheld computers in education, videoconferencing, Web resources, on-line learning and other methods of transforming learning through technology.

ENTREPRENEURIAL ACTIVITY

Fully 60 percent of the Pittsburgh Technology Council's member companies employ 10 employees or fewer. It is essential, therefore, that we as a region should concentrate our efforts in developing these types of firms and positioning them for continued growth. The Council's mission encompasses several initiatives that address this issue.

EnterPrize Business Plan Competition

EnterPrize Business Plan Competition is a collaborative program that seeks to spur the launch of entrepreneurial ventures in southwestern Pennsylvania by creating a financial incentive and presenting a curriculum of business planning fundamentals for people with innovative, growth-oriented ideas. The objective of EnterPrize is to launch 20 new businesses each year, while allowing participants to shape their ideas into viable business plans. Since the first EnterPrize in 1999, 750 teams comprised of more than 1,000 individuals have participated in the competition, about 47 of which have won a collective \$730,000 in prize money. Several participants have gone on to attract total funding in excess of \$100 million, regardless of whether they won in the competition or not.

Entrepreneurs Network

The Entrepreneurs Network is dedicated to the dissemination of information, delivery of educational programming and the provision of networking opportunities unique to the entrepreneurial community in southwestern Pennsylvania.

The Entrepreneurs Network hosted a series of "Lessons Learned" programs designed to educate and enlighten the entrepreneurial community through panel-driven discussions focusing on: finding success in failure, opportunity recognition and building companies to last. This highly rated series attracted more than 180 regional entrepreneurs. In addition, research is already underway to analyze the early stage investment infrastructure in southwestern Pennsylvania and to create future programming that addresses the funding and informational gaps that are so critical to the growth of entrepreneurial companies.

In 2006, the Pittsburgh Technology Council and the Donald H. Jones Center for Entrepreneurship, a unit of the Tepper School of Business at Carnegie Mellon University, announced a new partnership. The Jones Center recently revamped its decade-old Entrepreneurial Education Program (EEP) to better help southwestern Pennsylvania entrepreneurs start a company, acquire a company or grow an existing venture.

As a Gold Level sponsor of the program, the Council now offers the EEP to its membership on a discounted basis. This partnership provides a premier educational opportunity to the region's expanding technology community. In addition to the three-course EEP sequence, EEP and Tepper faculty offers several special sessions and workshops for Council member companies.

BUSINESS CLIMATE

Representing the aggregate voice of 1,350 member companies, the Pittsburgh Technology Council provides credible and effective leadership in our state, local and federal seats of governments on issues important to the health and growth of our region's technology community.

The Council educates its member companies about emerging legislative opportunities and threats. By engaging those companies in direct discussions with key elected officials, the Council has empowered its members to influence and affect the public policies that impact the business climate in which they operate.

Over the past year, the Council's advocacy efforts have focused on improving the state and local business climates through the creation of a more competitive tax system. In addition, the Council has advocated for the reform of the commonwealth's economic development policies to recognize the growing impact of technology-based entrepreneurs on our economy, and it has educated its member companies about state and federal procurement policies.

Recent Reforms

In 2006, the Council joined an active coalition of statewide businesses, entrepreneurs and fellow advocacy organizations in effort to redirect the General Assembly's attention to address the long-standing inequities in Pennsylvania's business climate.

Participating under the banner of CompetePA, in addition to the direct results of the Council's advocacy efforts in 2006, the Pennsylvania General Assembly adopted key legislation to reduce the state's business taxes by more than \$300 million annually. Of particular importance to the technology sector, provisions in the tax code that penalized companies for investment in personnel and capital facilities were reduced significantly (moving towards the single sales factor apportioning the corporate net income tax.)

Equally important, Pennsylvania's cap on net operating losses, currently the most restrictive in the nation, was increased from \$2 million to \$3 million or 12.5 percent, whichever is higher. In addition, the state's research and development tax credit was doubled from 10 percent to 20 percent for small businesses, and the overall pool of credits was expanded from \$30 million to \$40 million. Previously, the Council assisted in ushering a legislative change that enables technology companies, often with little or no tax liabilities in their start-up years, to begin generating revenue from the R&D tax credits. In 2006, many companies took advantage of this program by selling their unused credits for as much as 90 cents on the dollar to other Pennsylvania businesses.

Building a Strong Regional Economic Environment

Throughout the past several years, as the City of Pittsburgh faced a growing budget crisis, the Council reacted to numerous proposals that would have drastically increased taxes on small businesses, while unnecessarily delaying common sense spending reforms recommended by countless task forces over the past decade.

As a result of the Council's efforts, business taxes actually will be reduced by approximately 20 to 25 percent over the next two years.

In 2006, the Pittsburgh Technology Council worked with a select committee of the Pennsylvania Senate that was charged with reviewing the state's expenditures under the tobacco settlement agreement in order to gain a better understanding of the impact and importance of the R&D and economic development programs enabled through these funds. As a top priority the Council urged the committee to identify a long-term source of funding:

- to sustain Pennsylvania's three life sciences greenhouses
- to renew its investments and support for life sciences-based venture capital funds
- to maintain its commitment to world-class life sciences research efforts at state's research hospitals and universities through the Commonwealth Universal Research Enhancement (CURE) grant program.

Further, in order to support full-spectrum life sciences research throughout the state, the Council has encouraged the commonwealth to provide research grants to emerging and start-up companies. If adopted, this proposal would result in nearly \$11 million in new funding to support commercialization of exciting new technologies that advanced cures and therapies for the nation's most debilitating diseases, while also supporting the economic growth and vitality of Pennsylvania's emerging life sciences companies.

Policy Forums

On a regular basis the Council convenes some of the most influential policy makers from our state and federal governments to participate in round-table discussions with our member companies. In 2006, the Council hosted such meetings with the following key leaders:

- U.S. Treasury Secretary John Snow
- Former U.S. Department of Energy Secretary Spence Abraham
- Stephen Wax, Director of the Defense Science Office at the Defense Advanced Research and Projects Administration (DARPA)
- U.S. Senator Rick Santorum
- Former Congresswoman Melissa Hart
- Former Congressman Tim Murphy

- Vance Hitch, Chief Information Officer, U.S. Department of Justice
- Former Speaker of the Pennsylvania House of Representatives John Perzel
- The Pennsylvania House Finance Committee
- The Pennsylvania Senate Telecommunications and Technology Committee
- Pennsylvania House Majority Leader H. William DeWeese
- Pennsylvania Department of Revenue Secretary Greg Fajt
- Pennsylvania Senate Select Committee to Review Tobacco Settlement Expenditures
- Luke Ravenstahl, Mayor of the City of Pittsburgh

Business to Government Series

As the federal government is the nation's largest consumer of technology products and services, the Council offers an ongoing series to help educate companies about the intricacies of the federal contracting process and to create exposure for regional companies among key federal buyers. The following federal directors were hosted by the Council in 2006:

- National Institutes of Health Director Norika Ruiz- Bravo
- NASA Administrator Michael Griffin
- U.S. Department of Health and Human Services Secretary Mike Leavitt

The Council also hosted a federal procurement seminar in which 22 federal agencies participated. For more updates on the Council's advocacy and public policy initiatives, visit the Council Web site at <http://www.pghtech.org/advocacy/index.html>

RISK CAPITAL AVAILABILITY

The availability of risk capital in southwestern Pennsylvania was a prime emphasis in the GO KIZ study report delivered by Milken and Batelle. To compete with other markets the size of southwestern Pennsylvania, this region has got to pick up the pace. With several venture or risk capital programs in its portfolio of services, the Pittsburgh Technology Council is helping to set that pace.

3 Rivers Venture Fair

The Council works collaboratively with the Pittsburgh Venture Capital Association and Innovation Works to present the 3 Rivers Venture Fair, which provides a forum for the region's technology companies to interface with investors and financiers from throughout the northeastern U.S.

Approximately 430 attended the Venture Fair in 2006, including venture capitalists, investment bankers and angel investors. In addition, as a direct result of their participation in the previous year's Venture Fair, presenting companies collectively raised more than \$210 million in investment capital.

Southwestern Pennsylvania Angel Network

Angel Investors are high-net worth individuals who have a demonstrated interest in early stage, private investments. Over the last 30 years in America, the cumulative investments made by angels have been double that of venture capitalists. This trend underscores the importance of a robust region angel investment community. The Southwest Pennsylvania Angel Network (SPAN) was created in November 2002 as a quarterly forum for angel investors to view a select number of Innovation Works' (IW) highest-potential portfolio companies. In addition to providing a source of follow-on funding for a subset of IW's portfolio companies, the mission of SPAN is to keep the angel community invigorated and involved on an ongoing basis.

Seminar topics routinely explored by SPAN participants include but are not limited to due diligence, post-investment relationship, valuation mechanics and negotiating a deal. The Pittsburgh Angel Venture Fair also remains an important annual event.

Pittsburgh Angel Venture Fair

Pittsburgh Technology Council, Innovation Works and the Life Sciences Greenhouse assembled, screened and hosted 13 technology companies that presented at the first Pittsburgh Angel Venture Fair in February of 2006. Now in its second year, the Fair provides angel investors an occasion to explore the region's most exciting and promising technology startups in one room, in one day. It provides a forum to give angel investors and financial advisors an opportunity to meet and evaluate select and highly qualified entrepreneurs and candidate start-up companies for pre-seed or early-stage investment.

Presenting companies at the inaugural fair included: Caracal Semiconductor; Cardinal Resources, Inc.; Carnegie Speech Company, Inc.; ChemDAQ Corp.; Embrace Pet Insurance; FireFly; Power Technologies; Perioptimum; PetsDx Veterinary Imaging; Proteopure, Inc.; Mid-Market America, Inc.; StageMark; and Thorley Industries.

The challenges discussed in this section provide a framework around which to build strategies and implement tactics that will result in growth among the existing and emerging technology clusters. The continued success in solidifying technology's foundation and seating the region's reputation as a center of excellence will hinge on how well we address these challenges. The region's success also will depend upon how well it continues and expands upon the vital initiatives, like the ones described here.

OUTLOOK

The opportunities and challenges discussed in this section provide a framework around which to build strategies and implement tactics that will result in growth among the existing and emerging technology clusters. The continued success in solidifying technology's foundation and seating the region's reputation as a center of excellence will hinge on how well we exploit these opportunities and address these challenges. The region's success also will depend upon how well it continues and expands upon the vital initiatives, like the ones described on the previous pages.

Southwestern Pennsylvania has transformed itself from an economy based on large, traditional and heavy industry-oriented employers, primarily in the steel and other metals and materials industries, to one based on a diversified mix of technology, services and advanced manufacturing businesses. The more than 207,000 jobs created within these clusters have offset those that were lost in steel and other industry downsizing.

The region's technology industries, when taken in aggregate, have continued to increase their total annual payroll, now standing at \$10.8 billion, which represents nearly 24 percent of the region's total of all industries. Average wages increased 6.6 percent over a three-year period more than \$52.00 a year, thereby further illustrating that the technology sector features a high level of high-growth, high-paying jobs.

Continuing workforce education and development, improving the regional and state business climate and ensuring entrepreneurial vitality, including the availability of early stage venture capital, remain the region's biggest challenges.

Commensurate in importance with improving the product (our region) is polishing the its image. The region's centers of excellence in technology need to be promoted more aggressively to influential audiences throughout the country and the world. Meaningful financial resources need to be allocated to marketing the region's strengths and to dispelling old stereotyped perceptions. Key national trade and business media constantly must be apprised that the region is a center of innovation and leading-edge technology.

