

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



The Pennsylvania Department of Revenue
Bureau of Research

March 15, 2017

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

For R&D tax credits awarded between December 1997 and December 2003, Act 7 of 1997 authorized the Department of Revenue (Department) to approve up to \$15 million in total tax credits per 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).”

Over the years, several changes have been made to the R&D tax credit statute. Table 1 lists all of the acts that have changed the R&D tax credit statute, along with the applicable award years, the overall tax credit cap and the “small” business set aside.

**Table 1. Pennsylvania Research & Development Tax Credit Program
History of R&D Tax Credit Legislation**

Legislation	Award Years	Total Tax Credit Cap	Small Business Set Aside
Act 7 of 1997	1997 - 2003	\$15.0 million	\$3.0 million
Act 46 of 2003	2004 - 2005	\$30.0 million	\$6.0 million
Act 116 of 2006	2006 - 2008	\$40.0 million	\$8.0 million
Act 48 of 2009	2009	\$20.0 million	\$4.0 million
Act 48 of 2009	2010	\$18.0 million	\$3.6 million
Act 26 of 2011 ²	2011 - 2016	\$55.0 million	\$11.0 million
Act 85 of 2012 ³	Sunset Date Repealed	Unchanged	Unchanged
Act 85 of 2016 ⁴	Sunset Date Repealed	Unchanged	Unchanged

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

¹ Public Law 99-514, 26 U.S.C. § 41.

² The prior sunset date was established by Act 116 of 2006.

³ Act 85 of 2012 repealed the sunset date for the R&D tax credit in Section 1712-B, but left Section 1707-B unchanged.

⁴ Act 85 of 2016 repealed the sunset date for the R&D tax credit in Section 1707-B.

credit if there has been no claim for allowance filed within one year from the date that the Department approved the credit. According to Act 48 of 2009, for R&D tax credits awarded in December 2009 and forward, the one year holding period is no longer in effect; credits awarded in 2009 and forward can be sold immediately. The purchaser or assignee must still 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 75 percent 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 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) and 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 50 percent. Act 46 of 2003 eliminated this provision starting with tax year 2005; a taxpayer is able to use the awarded R&D tax credit to reduce a given tax liability by up to 100 percent. 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.

Act 85 of 2012 repealed the sunset date for the R&D tax credit in Section 1712-B of the law, but left the reference to the sunset date in Section 1707-B unchanged. Act 85 of 2016 repealed the reference to the sunset date in Section 1707-B. Without the repeal made by Act 85 of 2016, the awarding of the tax credit in December 2016, the award covered in this report, would have been the final time the tax credit was awarded.

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 2014, 2015 and 2016, 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."⁵ These small start-up firms, which often do not have significant tax liabilities

⁵ "Research and Development Tax Credit Assignment Program Guidelines," DCED, September 2004.

in their early years, receive cash for their unused R&D tax credits.⁶ The purchasers of the unused R&D tax credits are then able to partially offset their own tax liabilities with the unused credits.

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.

The buyer of the unused R&D tax credit can use it to offset up to 75 percent 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 2017, \$98.4 million of the \$508.0 million R&D tax credit awarded between December 2003 and December 2015 (i.e., 19.4 percent of the \$508.0 million) has been sold or assigned. Purchasers of those unused tax credits have paid \$92.0 million for them in total, or 93.4 percent of the value of the unused tax credits.

The complete statistics on sold or assigned unused tax credits by award year are shown in Table 2.

**Table 2. Pennsylvania Research & Development Tax Credit Program
Complete Statistics on the Sale or Assignment of Unused R&D Tax Credits**

(\$millions)

Credit Awarded In	R&D Credit Awarded	Unused Tax Credits Sold/Assigned	Number of Taxpayers Selling/Assigning Unused Credit	Unused Tax Credits Sold For	Percent of Value Unused Tax Credits Sold For
Dec 2003	\$15.0	\$ 1.3	18	\$ 1.2	91.4%
Dec 2004	\$30.0	\$ 3.7	44	\$ 3.3	90.1%
Dec 2005	\$30.0	\$ 9.2	50	\$ 8.6	93.3%
Dec 2006	\$40.0	\$ 8.7	74	\$ 8.2	94.0%
Dec 2007	\$40.0	\$ 9.1	91	\$ 8.7	95.7%
Dec 2008	\$40.0	\$10.8	123	\$10.3	95.3%
Dec 2009	\$20.0	\$ 5.0	107	\$ 4.7	93.5%
Dec 2010	\$18.0	\$ 2.8	107	\$ 2.6	93.7%
Dec 2011	\$55.0	\$13.5	120	\$12.6	93.1%
Dec 2012	\$55.0	\$ 4.9	120	\$ 4.5	91.9%
Dec 2013	\$55.0	\$ 8.1	148	\$ 7.5	92.8%
Dec 2014	\$55.0	\$11.0	164	\$10.2	92.5%
Dec 2015	\$55.0	\$10.3	156	\$9.6	92.8%
TOTAL	\$508.0	\$98.4		\$92.0	93.4%

Tax credit sales are often arranged by a broker, who provides a service by bringing together sellers and buyers of credits, and in return takes a portion of the tax credit as their fee. The Department does not have

⁶ “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.

complete data about these arrangements. However, DCED staff has stated that the level of broker fees can vary widely, but the average broker fee is in the range of 5 to 6 percent of the value of the credit.

R&D Tax Credit Claimed and Awarded in Pennsylvania for December 2016

Table 3 shows the amount of R&D tax credit awarded by the Department in 2016 for qualified research expenditures made by taxpayers in Pennsylvania in taxable year 2015. Without the \$55 million cap, \$85.5 million in credit would have been awarded to 948 taxpayers. 78.7 percent of approved taxpayers received an R&D tax credit of less than \$50,000, receiving 19.1 percent of the total amount of approved credit. Taxpayers with an approved R&D tax credit of \$50,000 or more claimed 80.9 percent of the approved credit amount. The 202 taxpayers receiving \$50,000 or more in credit represented 21.3 percent of the total number of applicants.

**Table 3. Pennsylvania Research & Development Tax Credit Program
Tentative and Actual Credit for Tax Year 2016⁷**

Actual Credit Range	Number of Applicants	Percent of Applicants	Tentative Credit Amount	Actual Credit Amount	Percent of Actual Credit
\$1 - \$4,999	203	21.4%	\$748,587	\$455,910	0.8%
\$5,000 - \$19,999	342	36.1%	\$6,227,485	\$3,819,649	6.9%
\$20,000 - \$49,999	201	21.2%	\$9,933,288	\$6,202,799	11.3%
\$50,000 - \$99,999	100	10.5%	\$11,346,804	\$7,166,461	13.0%
\$100,000 - \$499,999	84	8.9%	\$25,960,524	\$16,640,151	30.3%
\$500,000 - \$999,999	15	1.6%	\$15,780,345	\$10,515,481	19.1%
\$1,000,000 & greater	3	0.3%	\$15,487,922	\$10,199,549	18.5%
TOTAL	948	100%	\$85,484,955	\$55,000,000	100%

Table 4 details the tentative amount of R&D tax credit awarded by the Department for each year through December 2016.

**Table 4. Pennsylvania Research and Development Tax Credit Program
Total Tentative Tax Credit Awarded By Year, 1997-2016**

Credit Awarded In	Number of Applicants	Tentative Credit Amount	Credit Awarded In	Number of Applicants	Tentative Credit Amount
Dec 1997	292	\$66,371,038	Dec 2007	439	\$94,732,918
Dec 1998	270	\$56,572,339	Dec 2008	466	\$90,712,865
Dec 1999	275	\$53,456,489	Dec 2009	507	\$80,208,000
Dec 2000	284	\$59,207,493	Dec 2010	488	\$94,419,561
Dec 2001	293	\$71,407,604	Dec 2011	537	\$130,551,357
Dec 2002	254	\$74,255,800	Dec 2012	569	\$106,966,882
Dec 2003	242	\$70,191,922	Dec 2013	631	\$94,468,310
Dec 2004	274	\$70,932,913	Dec 2014	765	\$87,511,431
Dec 2005	291	\$65,806,128	Dec 2015	790	\$84,110,535
Dec 2006	379	\$78,640,025	Dec 2016	948	\$85,484,955

⁷ Detail may not add up due to rounding; 160 other applicants were rejected and did not receive any credit.

From its inception through December 2016, the R&D tax credit program has awarded a total of \$653 million in tax credit to 2,782 different taxpayers. In December 2016, 948 taxpayers were awarded the R&D tax credit, by far the highest number of applicants awarded the tax credit in one year in the history of the program. Without any caps on annual awards, \$1,616.0 million in R&D tax credit would have been awarded to those same 2,782 taxpayers. Over the years, the varying annual credit caps have reduced the amount of R&D tax credit that would have been awarded to 40.4 percent of what was requested.

Table 5 presents the R&D tax credit awarded in December 2016 by business type.

**Table 5. Pennsylvania Research and Development Tax Credit Program
Actual Credits by Business Type in 2016**

Business Type	Number of Taxpayers	Percent of Taxpayers	Actual Credit Amount	Percent of Actual Credit
Manufacturing	458	48.2%	\$31,299,869	56.9%
Services	350	36.9%	\$18,696,797	34.0%
Misc. ⁸	140	14.9%	\$ 5,003,334	9.1%
TOTAL	948	100%	\$55,000,000	100%

Manufacturers represented 48.2 percent of the taxpayers receiving the tax credit in 2016, claiming 56.9 percent of the total amount of approved credit. Pharmaceutical manufacturers continue to claim the largest single share for manufacturers receiving the R&D tax credit; 34 pharmaceutical manufacturers requesting credit were awarded \$12.8 million in credit. In the Services sector, the largest group of credit recipients was designers of computer system services, with 76 recipients receiving \$3.4 million in credit. In the Misc. sector, there was not one particular type of business among tax credit recipients that was more prevalent.

Table 6 provides a breakdown of the R&D tax credit claimed by “small” and “not small” businesses in December 2016. As noted earlier, “small” businesses are those with net book assets of less than \$5 million.

**Table 6. Pennsylvania Research and Development Tax Credit Program
Small and Not Small Businesses in 2016**

Business Size	Number of Applicants	Percent of Applicants	Tentative Credit Amount	Actual Credit Amount	Percent of Actual Credit
Small	432	45.6%	\$18,610,980	\$11,000,000	20.0%
Not Small	516	54.4%	\$66,873,975	\$44,000,000	80.0%
TOTAL	948	100%	\$85,484,955	\$55,000,000	100%

In December 2016, “small” businesses filed for awards totaling more than the \$11.0 million in R&D tax credit set aside for them, hence their awards had to be pro-rated in 2016. The \$55 million program cap reduced the amount of credit approved for the “not small” businesses to 65.8 percent of the requested amount in December of 2016. Last year, the “not small” businesses received 60.6 percent of the amount of credit they requested in December 2015.

⁸ Misc. business type includes business activities associated with individuals or corporations with North American Industry Classification System (NAICS) codes for the agriculture, construction, mining, wholesale trade, retail trade, and financial sectors.

Table 7 shows the history of the R&D tax credit for the “small” business set aside awarded by the Department for each year through December 2015.

**Table 7. Pennsylvania Research and Development Tax Credit Program
Small Business Set Aside By Year, 1997-2016**

Credit Awarded In	Number of Applicants	Tentative Credit Amount	Actual Credit Amount
Dec 1997	67	\$889,054	\$889,054
Dec 1998	85	\$1,821,354	\$1,821,354
Dec 1999	82	\$3,001,986	\$3,000,000
Dec 2000	83	\$1,545,359	\$1,545,359
Dec 2001	75	\$1,373,382	\$1,373,382
Dec 2002	79	\$1,615,602	\$1,615,602
Dec 2003	81	\$1,082,263	\$1,082,263
Dec 2004	94	\$1,419,845	\$1,419,845
Dec 2005	108	\$2,268,046	\$2,268,046
Dec 2006	173	\$7,081,079	\$7,081,079
Dec 2007	193	\$6,845,879	\$6,845,879
Dec 2008	205	\$8,052,975	\$8,000,000
Dec 2009	211	\$8,688,383	\$4,000,000
Dec 2010	213	\$8,487,767	\$3,600,000
Dec 2011	217	\$7,632,711	\$7,632,711
Dec 2012	242	\$7,085,229	\$7,085,229
Dec 2013	276	\$9,405,048	\$9,405,048
Dec 2014	332	\$10,801,901	\$10,801,094
Dec 2015	348	\$11,512,830	\$11,000,000
Dec 2016	432	\$18,610,980	\$11,000,000

“Small businesses” have been awarded \$101.5 million of the \$119.2 million in R&D tax credits that they have applied for since the inception of the R&D tax credit program; they have received 85.1 percent of the total amount of tax credits for which they applied. A total of \$130.6 million in tax credit was set aside for them over this period.

Six times in the history of the R&D tax credit program the “small” business set aside has been awarded in total: 1999, 2008, 2009, 2010, 2015 and 2016. Most years, the “small businesses” have received the total amount of tax credit for which they applied. 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 8 shows the amount of R&D tax credit that has been applied against the CNIT, CSFT and PIT for taxable years 1997 through 2014. The data in Table 8 are for taxpayers that have directly received the tax credit from the Department, as well as those taxpayers that have purchased unused R&D tax credits.

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 2017.

Table 8 shows the distribution of the R&D tax credits that have been applied to specific tax years. As of February 2017, 82.1 percent of the \$543 million in R&D tax credit that has been awarded for 1997 through 2014 has been applied to specific tax periods. Of the applied credits, 40.4 percent has been applied against the CSFT; 53.9 percent has been applied against the CNIT; 5.7 percent has been applied against the PIT. 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 assessment or the application of other credits.

**Table 8. Pennsylvania Research and Development Tax Credit Program
Application by Tax Type and Taxable Year, 1997-2014**

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	\$ 3,654,425	192	\$187,863	91
1998	\$ 2,669,951	84	\$ 5,262,915	199	\$791,636	195
1999	\$ 3,129,320	91	\$ 6,317,818	233	\$439,671	162
2000	\$ 4,495,931	77	\$ 6,465,943	213	\$523,087	201
2001	\$ 6,364,344	82	\$ 7,141,332	217	\$534,126	173
2002	\$ 7,925,753	49	\$ 5,313,965	220	\$487,586	169
2003	\$ 8,733,454	62	\$ 8,086,269	217	\$337,985	154
2004	\$14,874,207	67	\$ 8,387,866	263	\$713,456	169
2005	\$12,630,586	66	\$13,164,167	291	\$ 1,389,912	179
2006	\$16,241,888	96	\$15,884,694	328	\$ 2,679,623	235
2007	\$15,221,106	104	\$12,720,361	356	\$ 1,799,924	236
2008	\$18,151,421	103	\$11,792,443	407	\$ 1,327,515	306
2009	\$ 8,414,374	91	\$12,364,902	480	\$ 1,460,930	211
2010	\$20,594,531	110	\$12,878,861	505	\$ 1,334,225	187
2011	\$19,812,175	109	\$20,511,508	537	\$ 1,888,433	256
2012	\$16,374,978	143	\$14,074,084	531	\$ 2,966,287	325
2013	\$32,471,621	156	\$ 7,237,717	567	\$ 2,971,234	427
2014	\$27,407,920	162	\$ 8,859,267	649	\$ 3,429,816	517
TOTAL	\$240,321,961		\$180,118,536		\$25,263,309	

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.

R&D tax credits awarded in December 1997, the first credits awarded under the program, have expired and cannot be used beyond tax year 2012. As of February 2017, of the \$15.0 million awarded to 292 taxpayers

in December 1997, approximately \$250,000 has not yet been used. This amounts to 1.7 percent of the total amount of R&D tax credits awarded in 1997.

R&D tax credits awarded in December 1998 have expired and cannot be used beyond tax year 2013. As of February 2017, of the \$15.0 million awarded to 270 taxpayers in December 1998, approximately \$318,000 has not been used. This amounts to 2.1 percent of the total amount of R&D tax credits awarded in 1998.

It is still possible that these expired tax credits could be used if certain past tax liabilities for those taxpayers were to change. But those tax credits cannot be sold or used against any future tax years.

One possible reason for non-use of the tax credit 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 percent 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 percent 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.

As of January 1, 2016, the CSFT has been eliminated, and the R&D tax credit can no longer be claimed against it for tax year 2016 and forward. This is important for S corporations and LLCs that are not subject to the CNIT. S corporations and LLCs may pass the tax credit through to shareholders who can claim it against their PIT. Therefore, S corporations and LLCs, in order to use the R&D tax credit after 2016, 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

Table 9 shows the CNIT and CSFT liabilities for taxable year 2014 (the latest year for which reports are available for all taxpayers) for taxpayers receiving the R&D tax credit in 2016. Table 9 and Table 5 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 9. Pennsylvania Research and Development Tax Credit Program
Taxable Year 2014 Tax Liabilities by Business Type**

Business Type	2014 CSFT Liability	2014 CNIT Liability
Manufacturing	\$ 5,999,447	\$117,128,085
Services	\$ 3,168,592	\$30,554,549
Misc.	\$ 1,545,130	\$15,774,700
TOTAL	\$10,713,169	\$163,457,334

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 2016 to the total tax year 2014 self-assessed CNIT and CSFT liabilities⁹. Of the 948 taxpayers receiving the R&D tax credit in 2016 that are subject to the CNIT or CSFT, their total self-assessed 2014 tax year CNIT and CSFT liabilities totaled \$174.2 million. Though there

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

are obviously varied ratios per individual taxpayer, the \$55 million in tax credit awarded in 2016 represented 31.6 percent of the total self-assessed tax amount for tax year 2014, while the \$85.5 million in tax credit requested represented 49.1 percent of the total self-assessed tax amount for tax year 2014.

The total 2014 CSFT liability for the 199 S corporations and LLCs receiving the R&D tax credit in 2016 was \$0.3 million. Out of the 199 Pennsylvania S corporations or LLCs, 74 had a CSFT liability of zero for 2014. The total 2014 CSFT liability for the 746 C corporations receiving the R&D tax credit in 2015 was \$10.4 million. Out of the 746 C corporations, 252 had a CSFT liability of zero for 2014.

The 746 C corporations receiving the tax credit in 2015 and subject to the CNIT had a total taxable year 2014 CNIT liability of \$163.4 million. Of these companies, 577 were C corporations with a taxable year 2014 CNIT liability equal to zero, due to negative net income in taxable year 2014. 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 as a temporary credit in 1981. The federal government does not cap the total credit amount that can be claimed in a taxable year. Since its enactment the credit was temporary and was routinely extended through legislation. On December 18, 2015, the credit was made permanent and enhanced with the enactment of the Protecting Americans from Tax Hikes (PATH) Act of 2015 (H.R. 2029; P.L. 114-113).

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 Expenditures in Pennsylvania and the United States

In 1995, according to the National Science Foundation (NSF), private industry in Pennsylvania spent \$5,331 million of its own funds on R&D expenditures. This was 4.0 percent of the total R&D expenditures by private industry in 1995 in the United States (\$132,103 million).

By 2013¹⁰, the total amount of R&D expenditures in Pennsylvania by private industry had risen to \$10,761 million. This was an increase over the 19 year period of 101.9 percent. Over the same period, total R&D expenditures by private industry in the United States had risen by 134.6 percent to a level of \$309,868 million. For 2013, R&D expenditures in Pennsylvania by private industry were 3.5 percent of total R&D expenditures by private industry in the United States. Pennsylvania ranked 9th in the entire US in R&D spending by private industry in 2013.

The Pennsylvania R&D expenditures reported on the 2014 tax credit applications for businesses receiving the R&D tax credit, which were based on research expenditures in 2013, represented 39.2 percent of the total R&D performed in Pennsylvania by private industry as estimated by the NSF in 2012.

For comparison, the 948 R&D tax credit applicants in 2016 had total Pennsylvania R&D expenditures in 2015 of \$3,116.5 million. Not all R&D done by industry in Pennsylvania is performed by R&D tax credit applicants.

¹⁰The most recent year for which estimated state-level R&D spending is available from the National Science Foundation is 2013.

A study released in September 2011¹¹ by the R&D Credit Coalition, an organization of trade associations and companies dedicated to the permanent establishment of the federal R&D tax credit, examined the economic impact of the existing R&D tax credit and the potential impact of strengthening certain provisions of the R&D tax credit. The study found that the existing federal R&D tax credit “is estimated to have increased annual private research spending by \$10 billion in the short-term and by \$22 billion in the long-term.” It was noted that these annual figures compare very favorably with the \$6 to \$8 billion annual federal revenue loss attributed to the credit.

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 41 other states besides Pennsylvania that have provided for R&D tax credits in recent law, although, for a few of those states, the credits may have lapsed pending renewal. Most incorporate provisions of current or former R&D credits under the Internal Revenue Code.¹²

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 percent cap on the amount of credit that a taxpayer can apply against its tax year liability. In fiscal year 2016, \$80.0 million in R&D tax credit was claimed in New Jersey. 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.¹³ 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 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 had a potential impact on increasing research expenses in nineteen years, 1997 through 2015. 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. Also, 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 over the life of its existence.

The most recent economic recession did have an impact on R&D spending in Pennsylvania by private industry. Overall, R&D spending in Pennsylvania by industry fell by 13.2 percent in 2008 but recovered strongly in 2009 to grow by 13.7 percent according to NSF data.

Over the lifetime of the R&D tax credit program, 2,782 different taxpayers have been awarded some amount of the total \$653 million in tax credit awarded between 1997 and 2016. The number of taxpayers qualifying for the tax credit due to increased Pennsylvania research expenditures is still expanding, though there is some volatility from year to year regarding Pennsylvania research expenditure amounts.

Of the 948 taxpayers receiving the R&D tax credit in 2016, 202 were either Pennsylvania S corporations, LLCs, LLPs (limited liability partnerships) or individuals and 746 were C corporations. The S corporations,

¹¹ “The R&D Credit: An Effective Policy for Promoting Research Spending,” Prepared by Ernst and Young LLP for the R&D Credit Coalition, September 2011.

¹² CCH Incorporated, Multistate Charts, ¶680-200 Credits for Investment/Research Activities.

¹³ Companies with 225 employees or less may sell unused R&D tax credits in New Jersey.

LLCs, LLPs or individuals received \$7.0 million in R&D tax credit, while the C corporations received \$48.0 million.

The 948 taxpayers claiming the R&D tax credit in 2016 had total Pennsylvania research expenditures in taxable year 2015 of \$3,116.5 million. This was 21.2 percent increase compared to their total Pennsylvania research expenditures in taxable year 2014 of \$2,570.8 million.

While there is not a study measuring the effects of the R&D tax credit in Pennsylvania, a study released by the Milken Institute¹⁴ in December 2015 could be used to gauge the effectiveness of the R&D tax credit programs in a general sense. The study measures the impact of a proposal to double the existing rate of calculation in the California R&D tax credit from 15 percent to 30 percent of the increase in California R&D expenses over the base year. The report concluded that, in the tenth year after adopting the change, the \$700 million in additional R&D credits would stimulate between \$4.5 billion and \$6.8 billion in additional R&D activity in California, with a multiplier between 6.4 and 9.7. Further, the report found that that, in the tenth year after adopting the change, the gross domestic product (GDP) of California would be higher by between \$7.7 billion and \$10.5 billion. For comparison's sake, in 2014, California's GDP was \$2.31 trillion, so the additional growth of between \$7.7 billion and \$10.5 billion in ten years time would not be a significant share of the California economy. Even so, the report does conclude that while doubling the tax credit could be seen as an unfair tax giveaway, it concludes that the action is worth the cost. It is worth pointing out that Pennsylvania is a very different business environment than California, and it's unclear that the same conclusion can be drawn here.

Impact on Not Small Businesses

Out of the 948 taxpayers receiving the tax credit in 2016, 516 did not qualify as "small" businesses. Their total Pennsylvania research expenditures in taxable year 2015 were \$2,873.2 million, a 19.7 percent increase over their taxable year 2014 Pennsylvania research expenditures of \$2,400.9 million. They received \$44 million in R&D tax credit in December 2016.

Of the 516 "not small" businesses, 417 increased their Pennsylvania research expenditures in taxable year 2015 over taxable year 2014 by 35.3 percent in the aggregate. Their Pennsylvania research expenditures in taxable year 2015 rose to \$2,080.1 million from \$1,537.2 million in taxable year 2014. Only 99 of these businesses reduced their Pennsylvania research expenditures over the same period. Their Pennsylvania research expenditures in taxable year 2015 declined by 8.2 percent to \$793.1 million from \$863.7 million in taxable year 2014.

Impact on Small Businesses

Out of the 948 taxpayers receiving the tax credit in 2016, 432 were "small" businesses. Their total Pennsylvania research expenditures in taxable year 2015 were \$243.3 million, a 43.2 percent increase over their taxable year 2014 Pennsylvania research expenditures of \$169.9 million. The 432 "small" businesses received all of the \$11.0 million set aside for them in December 2016.

Of the 432 "small" businesses, 362 increased their Pennsylvania research expenditures in taxable year 2015 over taxable year 2014 by 56.3 percent in the aggregate. Their Pennsylvania research expenditures in taxable year 2015 rose to \$213.8 million from \$136.8 million in taxable year 2014. Only 70 "small" businesses reduced their Pennsylvania research expenditures over the same period. Their Pennsylvania research expenditures in taxable year 2015 declined by 10.8 percent to \$29.5 million from \$33.1 million in taxable year 2014.

¹⁴ "California's Innovation-Based Economy: Policies to Maintain and Enhance It," The Milken Institute, December 2015.

Impact on First Time Claimants and New Companies

In 2016, 284 taxpayers were awarded the tax credit for the first time, claiming \$9.8 million in credit. Their Pennsylvania research expenditures totaled \$344.8 million for taxable year 2015. Conversely, 263 taxpayers that claimed the tax credit in 2015 did not receive any credit in 2016. These 263 taxpayers had Pennsylvania research expenditures in taxable year 2014 of \$1,685.9 million and claimed \$20.0 million in tax credit in 2015.

Of all the 948 taxpayers claiming the R&D tax credit in 2015, 548 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 \$34.2 million in tax credit in 2016 and had total Pennsylvania research expenditures in taxable year 2015 of \$1,464.5 million, a 30.7 percent increase from their Pennsylvania research expenditures in taxable year 2014 of \$1,120.5 million.

The 548 more recently incorporated companies had a total taxable year 2014 CSFT liability of \$2.8 million; 262 taxpayers had zero tax liability. The 548 companies had a total taxable year 2014 CNIT liability of \$39.0 million; 483 taxpayers had zero tax liability.

Impact on Established Companies

In order to provide more insight into the companies that regularly claim the R&D tax credit, this report will examine 171 taxpayers for which the Department has tracked Pennsylvania research expenditures for the last ten taxable years, from 2006 through 2015. This group of credit recipients has received \$112.4 million in total tax credit from 1997 through 2016, or 17.2 percent of the total \$653 million awarded over twenty years. These 171 companies represent 58.6 percent 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.

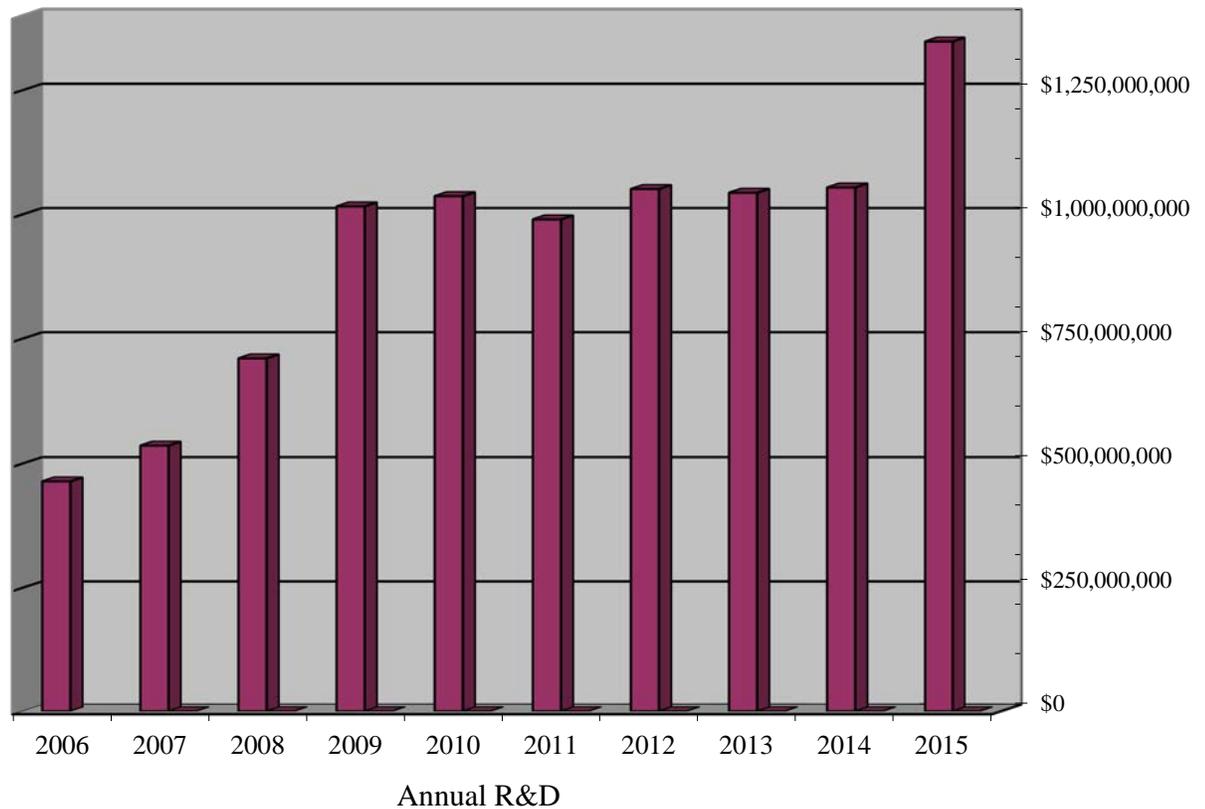
For these 171 taxpayers, their 2015 Pennsylvania R&D expenditures totaled \$1,348.7 million. This is an aggregate growth rate of 190.0 percent over their 2005 Pennsylvania R&D expenditures of \$465.0 million; between 2006 and 2015, the Pennsylvania R&D expenditures for these 171 taxpayers grew at a compound annual growth rate of 12.6 percent.

These 171 taxpayers were awarded \$20.8 million in R&D tax credit in 2016, 37.8 percent of the total amount of R&D tax credit awarded in December 2016. This credit amount was 1.5 percent of their total amount of Pennsylvania research expenditures in taxable year 2015. Overall, it is important to note that the R&D tax credit awarded remains relatively small when compared to the amount of money spent by the taxpayers to conduct their research activities in the Commonwealth.

The 171 established taxpayers had a total CSFT liability for taxable year 2014 of \$3.5 million and a total CNIT liability for taxable year 2014 of \$29.6 million.

Chart 1 graphically shows the Pennsylvania R&D expenditures for the 171 established taxpayers for the last ten taxable years, 2006 through 2015.

Chart 1. Pennsylvania R&D Expenditures by Year for 171 Established Companies With PA Expenditure Data Between 2006 and 2015



Small versus Not “Small”

Of the 171 taxpayers, 107 did not qualify as “small” businesses. They received \$95.8 million in tax credit over the twenty years of the program. Their 2015 Pennsylvania R&D expenditures totaled \$1,301.7 million. This is an aggregate growth rate of 185.2 percent over their 2006 Pennsylvania R&D expenditures of \$456.4 million; between 2006 and 2015, the Pennsylvania R&D expenditures for these 107 taxpayers grew at a compound annual growth rate of 12.3 percent.

Of the 171 taxpayers, there were 64 “small” businesses that received \$16.6 million in tax credit over the twenty years of the program. Their 2015 Pennsylvania R&D expenditures totaled \$47.0 million. This is an aggregate growth rate of 446.8 percent over their 2006 Pennsylvania R&D expenditures of \$8.6 million; between 2006 and 2015, the Pennsylvania R&D expenditures for these 62 taxpayers grew at a compound annual growth rate of 20.8 percent.

By Industry Type

Of the 171 taxpayers, 112 were classified as manufacturers. They received \$86.8 million in tax credit over the twenty years of the program. Their 2015 Pennsylvania R&D expenditures totaled \$1,039.7 million. This is an aggregate growth rate of 150.8 percent over their 2006 Pennsylvania R&D expenditures of \$414.6 million; between 2006 and 2015, the Pennsylvania R&D expenditures for these 112 taxpayers grew at a compound annual growth rate of 10.8 percent.

Of the 171 taxpayers, there were 59 non-manufacturing businesses that received \$25.6 million in tax credit over the twenty years of the program. Their 2015 Pennsylvania R&D expenditures totaled \$309.0 million. This is an aggregate growth rate of 512.2 percent over their 2006 Pennsylvania R&D expenditures of \$50.5 million;

between 2006 and 2015, the Pennsylvania R&D expenditures for these 59 taxpayers grew at a compound annual growth rate of 22.3 percent.

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

When all 948 taxpayers receiving the R&D tax credit in 2016 were examined, “small” businesses increased their Pennsylvania research expenditures in taxable year 2015 more than “not small” businesses. However, the Pennsylvania research expenditures for “small” businesses were only 7.8 percent of the total Pennsylvania research expenditures in taxable year 2015 for all businesses receiving the tax credit. The overwhelming majority of Pennsylvania research expenditures continue to be made by taxpayers not classified as “small” businesses.

Of the 171 taxpayers examined for whom the Department has tracked Pennsylvania research expenditures for the last ten taxable years, for 2006 through 2015, 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.

Report Conclusion

The R&D tax credit has existed in Pennsylvania for twenty years. Literature evaluating the effectiveness of the federal R&D tax credit and state R&D tax credits has shown mixed results regarding the effectiveness of the programs. 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 December 2016, 948 companies were awarded credits, receiving the capped amount of \$55 million, or 64.3 percent of the amount requested.
- In the absence of a cap, \$85.5 million in tax credits would have been awarded.
- In 2016, the 948 companies awarded the R&D tax credit had total Pennsylvania research expenditures of \$3,116.5 million in 2015.
- Manufacturing firms, particularly pharmaceutical manufacturers, continue to be the primary beneficiaries of the R&D tax credit.
- “Small” businesses claimed all of the \$11.0 million in R&D tax credit set aside for them in December 2016.
- As of February 2017, a total of \$98.4 million in unused R&D tax credits have been sold or assigned from tax credits awarded from December 2003 through December 2015; \$92.0 million was paid for the unused credit, or 93.4 percent of the value of the unused credits.
- The R&D tax credit program has awarded a total of \$653 million in tax credit to 2,782 different taxpayers over the life of the program thus far. Without the caps on annual awards, a total of \$1,616.0 million in requested R&D tax credit would have been awarded. The effect of the annual cap on awards reduced the aggregate amount of R&D tax credits awarded to 40.4 percent of the requested amount.

APPENDIX A

**Table 1. Pennsylvania Research & Development Tax Credit Program
Taxpayers Receiving Credit in December 2016, 2015 and 2014
Sorted by 2016 Credit Awarded (Largest to Smallest)**

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Janssen Research & Development, LLC	\$5,695,092	\$0	\$2,747,537	\$2,747,537
Google, Inc.	\$3,456,670	\$0	\$766,536	\$766,536
Cisco Systems, Inc.	\$1,047,786	\$0	\$1,315,276	\$0
Bayer Healthcare, LLC	\$996,149	\$0	\$0	\$0
Trevena, Inc. (f/k/a Parallax, Inc.)	\$994,736	\$0	\$974,532	\$280,409
The Hershey Company	\$890,282	\$0	\$441,730	\$441,730
Omnyx, LLC	\$828,763	\$0	\$593,963	\$593,963
Mack Trucks, Inc.	\$800,418	\$0	\$2,304,575	\$1,691,760
JLG Industries, Inc.	\$695,844	\$0	\$856,239	\$344,482
Sanofi Pasteur, Inc.	\$671,544	\$0	\$957,730	\$957,730
QVC, Inc.	\$662,940	\$0	\$206,192	\$206,192
Shire Holdings US, AG	\$621,710	\$0	\$1,223,167	\$0
Novartis Pharmaceuticals Corporation	\$608,743	\$0	\$1,144,884	\$1,144,884
Janssen Biotech, Inc. (f/k/a CentroOrthoBiotech, Inc.)	\$591,853	\$0	\$417,304	\$0
International Business Machines Corporation	\$559,759	\$0	\$1,576,014	\$665,218
ARRIS Technology, Inc. (f/k/a General Instrument Corporation)	\$552,731	\$0	\$1,141,920	\$1,141,920
Victaulic Company	\$534,815	\$0	\$493,034	\$63,956
SEI Global Services, Inc.	\$505,195	\$0	\$1,596,559	\$0
United States Steel Corporation	\$499,119	\$0	\$697,470	\$646,858
NetApp, Inc.	\$472,464	\$0	\$931,881	\$0
Lutron Electronics Co., Inc.	\$442,705	\$0	\$97,047	\$2,101
Zoll Manufacturing Corporation	\$423,069	\$0	\$0	\$0
Rex Medical, LP	\$420,971	\$0	\$0	\$0
Braskem America, Inc.	\$404,865	\$0	\$155,730	\$155,730
Marinus Pharmaceuticals, Inc.	\$403,184	\$0	\$0	\$0
SAP America, Inc.	\$344,686	\$0	\$954,405	\$756,630
The Vanguard Group, Inc.	\$336,788	\$0	\$789,254	\$244,605
Radian Guaranty, Inc.	\$308,336	\$0	\$0	\$0
Intact Vascular, Inc.	\$305,191	\$0	\$17,464	\$407
Johnson Matthey, Inc.	\$297,310	\$0	\$260,979	\$104,275
John Maneely Company	\$295,230	\$0	\$0	\$0
Vitae Pharmaceuticals, Inc. (f/k/a Concurrent Pharmaceuticals, Inc.)	\$269,391	\$0	\$164,224	\$9,904
Joy Global, Inc.	\$262,377	\$0	\$191,539	\$0
Lord Corporation	\$257,690	\$0	\$746,834	\$0
Ellwood Investment Corp.	\$248,862	\$0	\$75,274	\$21,180
BGFP GoogleDatacenter, Inc.	\$245,933	\$0	\$0	\$0
Globus Medical, Inc.	\$244,245	\$0	\$426,034	\$426,034
Industrial Scientific Corporation	\$242,474	\$0	\$267,084	\$181,032
Pfizer, Inc.	\$237,427	\$0	\$0	\$0
Optionality Digital Data Center, Inc.	\$235,733	\$0	\$0	\$0
Lehigh Cement Company, LLC	\$234,310	\$0	\$283,622	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
PPG Industries, Inc.	\$233,137	\$0	\$4,153,637	\$4,153,637
WHLRC Electronic Option and Futures Trading	\$228,735	\$0	\$0	\$0
John Bean Technologies Corporation	\$223,774	\$0	\$261,941	\$49,348
Caterpillar Global Mining America, LLC	\$223,577	\$0	\$201,037	\$46,160
Kennametal, Inc.	\$212,539	\$0	\$602,580	\$18,084
ABEC, Inc.	\$203,752	\$0	\$0	\$0
CSL Behring, LLC	\$202,318	\$0	\$574,748	\$574,748
Cognition Therapeutics, Inc.	\$192,773	\$0	\$468,491	\$468,491
Alexar Therapeutics, Inc. (d/b/a Ralexar Therapeutics)	\$191,889	\$0	\$0	\$0
Solvay USA, Inc.	\$191,087	\$0	\$346,543	\$172,975
FARO Technologies, Inc.	\$189,894	\$0	\$85,016	\$0
York International Corporation	\$179,748	\$0	\$303,643	\$183,782
Accu Measurement Testing, Inc.	\$178,328	\$0	\$381,369	\$381,369
Jazz Pharmaceuticals, Inc.	\$174,626	\$0	\$194,980	\$194,980
Thorley Industries, LLC	\$171,373	\$0	\$132,534	\$2,670
Aquion Energy, Inc.	\$171,185	\$0	\$300,891	\$300,891
Synchronoss Technologies, Inc.	\$170,656	\$0	\$196,230	\$72,787
DT Davis Enterprises, Ltd. Hovertch International	\$170,320	\$0	\$113,702	\$74,469
eDigital Data Center, Inc.	\$167,531	\$0	\$365,532	\$365,532
Duolingo, Inc.	\$165,725	\$0	\$132,680	\$67,083
Process Combustion Corporation	\$165,335	\$0	\$28,272	\$500
Verizon Data Services, LLC	\$163,840	\$0	\$70,754	\$70,754
Interstate Holding, Inc.	\$163,141	\$0	\$4,346	\$4,346
Armstrong World Industries, Inc.	\$161,434	\$0	\$0	\$0
Advanced Cooling Technologies, Inc.	\$160,001	\$0	\$211,307	\$207,219
InterDigital Communications, Inc.	\$158,506	\$0	\$0	\$0
Cobham Advanced Electronic Solutions, Inc.	\$158,386	\$0	\$593,130	\$2,821
Netronome Systems, Inc.	\$158,341	\$0	\$473,616	\$185,835
Datacap Systems, Inc.	\$156,023	\$0	\$88,825	\$9,445
Advanced Research Systems, Inc.	\$155,770	\$0	\$334,072	\$143,282
II-VI Incorporated	\$154,183	\$0	\$86,050	\$0
TetraLogic Pharmaceuticals Corporation	\$147,660	\$0	\$185,060	\$185,060
Cutanea Life Sciences, Inc.	\$146,185	\$0	\$227,042	\$3,611
Eisai, Inc.	\$144,716	\$0	\$0	\$0
Holtec Manufacturing Division	\$142,979	\$0	\$0	\$0
AT&T Services, Inc.	\$142,872	\$0	\$5,766	\$1,515
Frontline Technology Group, LLC	\$140,002	\$0	\$0	\$0
Internet Pipeline, Inc.	\$133,843	\$0	\$0	\$0
RB Distribution, Inc.	\$132,693	\$0	\$271,076	\$175,062
Fairchild Semiconductor Corporation	\$131,719	\$0	\$111,316	\$44
The Boeing Company	\$128,750	\$0	\$501,173	\$307,175
Renmatix, Inc.	\$124,386	\$0	\$296,391	\$296,391
Streamlight, Inc.	\$121,938	\$0	\$35,522	\$17,716
Phoenix Technical Solutions, Inc.	\$121,008	\$0	\$0	\$0
Shire Human Genetic Therapies, Inc.	\$118,253	\$0	\$85,593	\$0
Optionbotic Algorithm System, Inc.	\$117,651	\$0	\$0	\$0
Amuneal Manufacturing Corp.	\$116,830	\$0	\$66,231	\$43,052

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Global Technology Enterprise	\$115,887	\$0	\$159,337	\$159,337
Almac Clinical Technologies, LLC	\$114,364	\$0	\$182,395	\$0
Intertek USA, Inc.	\$114,005	\$0	\$166,183	\$71,921
Just Play, LLC	\$110,471	\$0	\$0	\$0
Oberg Industries, Inc. and QSS	\$110,141	\$0	\$154,784	\$67,518
Apple, Inc.	\$107,576	\$0	\$0	\$0
Respironics, Inc.	\$107,307	\$0	\$962,890	\$99,334
Scientific Software International	\$105,790	\$0	\$0	\$0
Wacker Chemical Corporation	\$102,991	\$0	\$57,723	\$57,723
Recro Pharma, Inc.	\$102,895	\$0	\$111,806	\$4,909
Advanced Technology Services Group, LLC	\$102,817	\$0	\$97,338	\$97,338
TMNA Serivces, LLC	\$102,375	\$0	\$0	\$0
Schell Games, LLC	\$101,011	\$0	\$72,418	\$72,418
Kurt J. Lesker Company	\$100,748	\$0	\$0	\$0
The ExOne Company	\$94,975	\$0	\$197,419	\$79,402
The Dow Chemical Company	\$94,668	\$0	\$97,254	\$61,971
Hireku, Inc.	\$94,617	\$0	\$159,436	\$933
SwapForMore, Inc.	\$94,335	\$0	\$0	\$0
Cherry Pick, Inc.	\$94,335	\$0	\$0	\$0
OptiNose US, Inc.	\$93,684	\$0	\$102,374	\$629
Heraeus Incorporated	\$93,632	\$0	\$96,973	\$96,973
Seakeeper, Inc.	\$93,236	\$0	\$78,921	\$3,972
Dart Container Corporation of Pennsylvania	\$92,879	\$0	\$89,068	\$0
Sciquest, Inc.	\$92,062	\$0	\$157,406	\$0
Finisar Corporation	\$91,146	\$0	\$174,603	\$0
USSC, LLC	\$90,011	\$0	\$67,017	\$12,079
Listrak, Inc.	\$89,858	\$0	\$151,093	\$111,991
Quest Diagnostics of Pennsylvania Incorporated	\$89,832	\$0	\$0	\$0
H.B. Frazer Company - Pennsylvania	\$89,793	\$0	\$77,085	\$0
First Insight, Inc.	\$89,722	\$0	\$181,292	\$181,292
USSC Acquisition Corp.	\$89,474	\$0	\$0	\$0
Lasko Products, Inc.	\$89,154	\$0	\$100,075	\$31,533
Gelest, Inc.	\$88,597	\$0	\$33,037	\$33,037
Aetna Life Insurance Company	\$87,702	\$0	\$0	\$0
DGI-Menard (d/b/a Menard)	\$86,164	\$0	\$112,373	\$64,683
Shire ViroPharma, Inc.	\$85,794	\$0	\$312,596	\$0
NCC Automated Systems, Inc.	\$85,077	\$0	\$328,107	\$267,599
Fujirebio Diagnostics, Inc.	\$84,091	\$0	\$0	\$0
Savana, Inc.	\$84,011	\$0	\$83,014	\$83,014
CMW Holdco, Inc. (d/b/a Cross MediaWorks)	\$83,937	\$0	\$0	\$0
CEWA Technologies, Inc.	\$82,887	\$0	\$0	\$0
Fleetwood Industries, Inc.	\$82,144	\$0	\$189,178	\$138,286
Standard Steel, Inc.	\$81,339	\$0	\$109,190	\$0
NoWait, Inc.	\$81,036	\$0	\$176,627	\$66,518
JD Eckman, Inc.	\$79,783	\$0	\$0	\$0
ANSYS, Inc.	\$79,389	\$0	\$66,872	\$66,872
Holtec International Power Division, Inc.	\$79,009	\$0	\$0	\$0
Fibrocell Science, Inc.	\$77,744	\$0	\$0	\$0
Abella, Inc.	\$77,524	\$0	\$122,387	\$122,387
Plastek Industries, Inc.	\$77,298	\$0	\$139,705	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Phoenix Laser Solutions, LLC	\$77,293	\$0	\$0	\$0
TELA Bio, Inc.	\$75,966	\$0	\$89,024	\$89,024
VEKA, Inc.	\$75,352	\$0	\$0	\$0
Complexa, Inc.	\$75,317	\$0	\$71,966	\$145
AeroTech, Inc.	\$75,198	\$0	\$87,866	\$7,353
Genesis Machining Products, Inc.	\$74,753	\$0	\$0	\$0
Online Store Builder, Inc.	\$74,601	\$0	\$69,081	\$0
Arrow International, Inc.	\$74,176	\$0	\$6,325	\$6,325
Orange Innovation, Inc.	\$73,441	\$0	\$71,987	\$71,987
Avere Systems, Inc.	\$72,408	\$0	\$200,849	\$62
American Computing, Inc.	\$70,651	\$0	\$40,268	\$40,268
Express Dynamics, LLC	\$70,358	\$0	\$97,141	\$97,141
Rhiza Labs, LLC	\$70,199	\$0	\$27,888	\$0
Wabtec Corporation	\$70,049	\$0	\$0	\$0
Microsemi SoC Corporation	\$70,018	\$0	\$263,218	\$0
Pharmaceutical Manufacturing Research Services, Inc.	\$69,868	\$0	\$164,444	\$70,313
BioSpectra, Inc.	\$69,491	\$0	\$90,134	\$46,107
Verizon Services Corp.	\$69,183	\$0	\$0	\$0
Sidecar Interactive, Inc.	\$68,787	\$0	\$214,665	\$106,292
Airolution, LLC	\$68,725	\$0	\$140,573	\$140,573
Clutch Holdings, Inc.	\$68,721	\$0	\$210,560	\$210,560
Knoll, Inc.	\$68,322	\$0	\$24,195	\$24,195
IDL Worldwide, Inc.	\$68,029	\$0	\$0	\$0
Blue Belt Technologies, Inc.	\$67,912	\$0	\$231,140	\$111,703
American Measurement and Quantitative Methods, Inc.	\$67,646	\$0	\$59,564	\$0
W.L. Gore & Associates, Inc.	\$65,639	\$0	\$42,999	\$7,504
American High Frequency Trading, Inc.	\$65,149	\$0	\$60,311	\$60,311
SofterWare, Inc.	\$64,211	\$0	\$73,155	\$33,777
Videon Central, Inc.	\$63,757	\$0	\$0	\$0
Melior Discovery, Inc.	\$63,543	\$0	\$62,482	\$62,482
NASDAQ, Inc.	\$63,462	\$0	\$0	\$0
BartonPartners Architects Planners	\$61,330	\$0	\$0	\$0
Allan Myers, Inc.	\$60,891	\$0	\$153,669	\$0
GlobalSubmit, Inc.	\$60,770	\$0	\$182,969	\$182,969
Dixie Consumer Products, LLC	\$60,610	\$0	\$0	\$0
Tech Molded Plastics, Inc.	\$59,844	\$0	\$104,694	\$64,333
Swank Construction Company, LLC	\$59,692	\$0	\$79,841	\$17,679
North American Hoganas Company, Inc.	\$59,093	\$0	\$89,841	\$89,841
Houghton International, Inc.	\$58,619	\$0	\$0	\$0
Tonic Design Co.	\$58,212	\$0	\$66,252	\$66,252
Rieker, Inc.	\$57,952	\$0	\$69,865	\$0
Global Data Management Systems, LLC	\$57,849	\$0	\$47,416	\$1,950
Applied Energy Systems, Inc.	\$57,130	\$0	\$0	\$0
Branding Brand, Inc.	\$57,030	\$0	\$57,988	\$0
Sicom Systems, Inc.	\$56,972	\$0	\$77,667	\$62,888
Knopp Biosciences, LLC	\$56,847	\$0	\$343,915	\$343,915
Turn 5, Inc.	\$56,361	\$0	\$151,164	\$53,276
ARCCA Incorporated	\$56,308	\$0	\$11,488	\$11,488
3GTMS, Inc.	\$56,275	\$0	\$98,055	\$67
Flexicon Corporation	\$56,064	\$0	\$137,036	\$3,203

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Domtar Corporation	\$55,850	\$0	\$289,930	\$289,930
Camber Spine Technologies, LLC	\$55,810	\$0	\$126,344	\$126,344
JUDCO Management, Inc.	\$55,448	\$0	\$2,026	\$0
NewLink Genetics Corporation	\$54,105	\$0	\$57,669	\$2,319
Ainsworth Pet Nutrition, LLC	\$53,863	\$0	\$0	\$0
Future POS, Inc.	\$53,328	\$0	\$300,001	\$231,500
Covestro, LLC	\$53,229	\$0	\$0	\$0
Amphenol Intercon Systems, Inc.	\$53,006	\$0	\$104,954	\$17,058
Essential Medical, Inc.	\$52,672	\$0	\$0	\$0
Larson Texts, Inc. (d/b/a Big Ideas Learning)	\$52,644	\$0	\$0	\$0
CloudMine, Inc.	\$52,177	\$0	\$24,062	\$0
Stitch, Inc. (f/k/a RJMetrics, Inc.)	\$51,373	\$0	\$145,991	\$62,858
Fire Engine Red, Inc.	\$51,323	\$0	\$67,757	\$67,757
Rajant Corporation	\$50,620	\$0	\$173,052	\$6,747
Minitab, Inc.	\$49,942	\$0	\$39,095	\$22,522
Penn State Industries, Inc.	\$49,520	\$0	\$0	\$0
Chant Engineering Co., Inc.	\$49,369	\$0	\$144,125	\$72,050
WebpageFX, Inc.	\$48,817	\$0	\$142,436	\$67,313
Amplifier Research Corp.	\$48,521	\$0	\$32,307	\$2,420
Synapse Print Management, LLC	\$48,334	\$0	\$0	\$0
Applied Systems Associates, Inc.	\$48,034	\$0	\$87,790	\$87,790
Algorithm Expert	\$47,856	\$0	\$49,841	\$0
National Magnetics Group, Inc.	\$47,751	\$0	\$29,346	\$487
JWF Holdings, Inc.	\$47,628	\$0	\$0	\$0
Global Tellink Corporation	\$47,368	\$0	\$0	\$0
GE Healthcare IITS USA Corp.	\$47,305	\$0	\$0	\$0
East Penn Manufacturing Company	\$47,289	\$0	\$0	\$0
Stoner, Inc.	\$46,602	\$0	\$30,106	\$30,106
ARRIS Global Services, Inc.	\$46,584	\$0	\$0	\$0
PrimePay, LLC	\$45,860	\$0	\$0	\$0
Universal Electric Corporation	\$45,813	\$0	\$42,995	\$12,039
Effort Foundry, Inc.	\$45,661	\$0	\$20,775	\$20,775
CytoVas, LLC	\$45,610	\$0	\$25,832	\$25,832
Quest Diagnostics Clinical Laboratories	\$45,297	\$0	\$0	\$0
Richter Precision, Inc.	\$44,996	\$0	\$63,164	\$28,538
Verizon Business Network Services, Inc.	\$44,986	\$0	\$65,964	\$65,964
Conduit Technology, LLC	\$44,835	\$0	\$75,911	\$75,911
Astrobotic Technology, Inc.	\$44,777	\$0	\$153,920	\$153,920
Lamtec Corporation	\$44,652	\$0	\$88,366	\$88,366
Fortna, Inc.	\$44,424	\$0	\$11,584	\$11,584
PhytogenX, Inc.	\$43,613	\$0	\$0	\$0
American Made, LLC	\$43,529	\$0	\$19,739	\$10
Itrco, LP	\$43,517	\$0	\$49,373	\$49,373
Momentum Dynamics Corporation, Inc.	\$43,468	\$0	\$128,861	\$128,861
Anholt Technologies, Inc.	\$43,176	\$0	\$67,795	\$34,920
SPD Electrical Systems, Inc.	\$43,061	\$0	\$20,476	\$20,476
American Financial Trading Research, Inc.	\$42,593	\$0	\$31,023	\$0
ASI Technologies, Inc.	\$42,204	\$0	\$29,293	\$0
Siemens PLM Software, Inc.	\$42,116	\$0	\$0	\$0
EnerSys Advanced Systems, Inc.	\$42,033	\$0	\$42,578	\$0
Area Tool & Manufacturing, Inc.	\$41,941	\$0	\$49,490	\$0
Corle Building Systems, Inc.	\$41,449	\$0	\$51,319	\$20,169

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Heeter Printing Company	\$41,223	\$0	\$0	\$0
Axalta Coating Systems, LLC	\$39,948	\$0	\$1,422	\$1,422
Think Through Learning, Inc.	\$39,390	\$0	\$117,342	\$0
Synergy Advanced Pharmaceuticals, Inc.	\$39,375	\$0	\$161,562	\$161,562
Dick's Sporting Goods, Inc.	\$38,651	\$0	\$359,477	\$359,477
Laser Tool, Inc.	\$38,006	\$0	\$0	\$0
Brentwood Industries, Inc.	\$37,974	\$0	\$11,536	\$0
Longevity Biotech, Inc.	\$37,917	\$0	\$0	\$0
Crestwood Membranes, Inc.	\$37,647	\$0	\$47,083	\$15,116
Sarris Candies, Inc.	\$36,767	\$0	\$31,365	\$31,365
US Boiler Company, Inc.	\$36,750	\$0	\$46,549	\$3
WFE Holdings, LLC	\$36,580	\$0	\$35,249	\$35,249
Cernostics, Inc.	\$36,280	\$0	\$160,053	\$160,053
Maguire Products, Inc.	\$35,634	\$0	\$46,015	\$2,317
Draeger Medical Systems, Inc.	\$35,619	\$0	\$0	\$0
Metaphase Technologies, Inc.	\$35,278	\$0	\$74,593	\$14,991
InfoMC, Inc.	\$35,135	\$0	\$128,830	\$0
Immunome, Inc.	\$34,291	\$0	\$0	\$0
Language Services Associates, Inc.	\$34,115	\$0	\$89,251	\$520
Dataforma Incorporated	\$33,826	\$0	\$98,478	\$98,478
Web Talent, LLC	\$33,684	\$0	\$0	\$0
Salimetrics, LLC	\$33,580	\$0	\$24,876	\$24,876
Cellular Tracking Technologies, LLC	\$33,262	\$0	\$6,869	\$6,869
Soft Genetics, LLC	\$33,238	\$0	\$35,179	\$22,412
Packaging Progressions, Inc.	\$33,003	\$0	\$41,308	\$9,633
AcademyOne, Inc.	\$32,984	\$0	\$0	\$0
Rockland, Inc.	\$32,774	\$0	\$3,523	\$4
Corry Manufacturing Company	\$32,634	\$0	\$0	\$0
Precision Medical Products, Inc.	\$32,183	\$0	\$26,113	\$18,728
Acutec Precision Machining, Inc.	\$31,583	\$0	\$0	\$0
Accudyn Products, Inc.	\$31,575	\$0	\$0	\$0
Sekisui Polymer Innovations, LLC	\$31,537	\$0	\$15,263	\$0
Snowdon International Limited Co. Cafferata	\$31,425	\$0	\$0	\$0
Control Analytics, Inc.	\$31,165	\$0	\$21,138	\$582
TicketLeap, Inc.	\$31,164	\$0	\$90,364	\$90,364
Neutronics, Inc.	\$30,669	\$0	\$23,578	\$0
Curry Rail Services, Inc.	\$30,651	\$0	\$0	\$0
Competition Tire East, Inc.	\$30,624	\$0	\$52,893	\$4,638
Polysciences, Inc.	\$30,403	\$0	\$22,096	\$504
Sunbury Textile Mills, Inc.	\$30,345	\$0	\$0	\$0
Carnegie Learning, Inc.	\$30,331	\$0	\$0	\$0
EnerSys Delaware, Inc.	\$30,327	\$0	\$19,443	\$19,443
Team Ten, LLC (American Eagle Paper Mills)	\$30,292	\$0	\$56,590	\$56,590
Gautier Steel, Ltd.	\$30,266	\$0	\$19,300	\$0
Inolox, Inc.	\$30,231	\$0	\$47,198	\$57
Highpoint Tool and Machine, Inc.	\$29,977	\$0	\$36,783	\$33,744
Ecotech Marine, LLC	\$29,948	\$0	\$200,550	\$115,293
Oncocutics, Inc.	\$29,601	\$0	\$0	\$0
O'Neal Industries, Inc.	\$29,563	\$0	\$0	\$0
Hadco Metal Trading Co., LLC	\$29,467	\$0	\$5,536	\$5,536

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Identified Technologies Corporation	\$29,370	\$0	\$0	\$0
Aesynt Incorporated	\$29,359	\$0	\$0	\$0
PBM, Inc.	\$29,357	\$0	\$6,218	\$239
Adobe Systems Incorporated	\$29,220	\$0	\$36,699	\$15,807
Neuro Kinetics, Inc.	\$29,102	\$0	\$48,842	\$35,520
Wilson Legal Solutions, Inc.	\$29,064	\$0	\$0	\$0
Custom Laminating Corporation	\$29,053	\$0	\$25,725	\$25,725
AFP Advanced Food Products, LLC	\$29,017	\$0	\$19,579	\$4,570
Robinson Fans, Inc.	\$28,960	\$0	\$0	\$0
Motors Drives & Controls, Inc.	\$28,918	\$0	\$9,492	\$458
DelphX, LLC	\$28,914	\$0	\$0	\$0
New Era Orthopaedics, LLC	\$28,844	\$0	\$28,181	\$28,181
Greenleaf Corporation	\$28,476	\$0	\$13,169	\$1,335
RDC Design Group, LLC	\$28,323	\$0	\$0	\$0
Graphene Frontiers, LLC	\$28,303	\$0	\$0	\$0
Laminated Materials Corporation	\$28,267	\$0	\$166,160	\$30
TLS Corp. Telos Systems	\$28,112	\$0	\$0	\$0
HindlePower, Inc.	\$28,069	\$0	\$38,877	\$22,713
Tex Visions, LLC	\$28,012	\$0	\$0	\$0
Bellefield Systems, LLC	\$27,960	\$0	\$13,237	\$10,575
The Proud Company	\$27,842	\$0	\$86,809	\$41,272
Modern Industries, Inc.	\$27,779	\$0	\$0	\$0
Medidata Solutions, Inc.	\$27,631	\$0	\$0	\$0
Samtec, Inc.	\$27,425	\$0	\$607	\$607
Magnetic Windings Co., Inc.	\$27,399	\$0	\$66,110	\$628
Durawood Products, Inc.	\$27,340	\$0	\$24,499	\$0
Trigon, Inc.	\$27,259	\$0	\$21,807	\$21,807
K-Fab, Inc.	\$27,043	\$0	\$125,816	\$125,816
Premier Dental Products Company	\$26,918	\$0	\$46,055	\$17,622
Rettew Associates, Inc.	\$26,857	\$0	\$0	\$0
Sharp Edge Labs, Inc.	\$26,684	\$0	\$0	\$0
Pine Hill Manufacturing, LLC	\$26,647	\$0	\$132,257	\$21,410
Die-Tech, Inc.	\$26,623	\$0	\$7,363	\$7,343
J.R. Peters, Inc.	\$26,600	\$0	\$6,583	\$25
Andritz, Inc.	\$26,557	\$0	\$0	\$0
Controlled Molding, Inc.	\$26,490	\$0	\$0	\$0
WizeHive, Inc.	\$26,380	\$0	\$0	\$0
Forge Life Sciences, LLC	\$26,329	\$0	\$7,959	\$7,959
EthosGen, LLC	\$26,263	\$0	\$0	\$0
Target Precision, LLC	\$26,193	\$0	\$36,223	\$17,973
IT Assist, LLC (d/b/a TeamLogic IT)	\$26,168	\$0	\$0	\$0
Progeny Systems Corporation	\$25,988	\$0	\$11,794	\$2,286
Propelics, Inc.	\$25,879	\$0	\$0	\$0
Raytheon Company	\$25,733	\$0	\$0	\$0
Liberty Fox Technologies, LLC	\$25,731	\$0	\$0	\$0
Printmail Solutions, Inc.	\$25,653	\$0	\$59,823	\$7,632
American International Forwarding, Inc.	\$25,552	\$0	\$60,154	\$60,144
Keystone Compliance, LLC	\$25,545	\$0	\$47,542	\$34,085
Leaf Pharmaceuticals, LLC	\$25,418	\$0	\$0	\$0
Zentis Beteiligungsverwaltungs GmbH & Co. KG	\$25,189	\$0	\$0	\$0
Keystone Machinery Corporation	\$25,094	\$0	\$57,266	\$16,118

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Miria Systems, Inc.	\$25,066	\$0	\$0	\$0
American Bridge Company	\$24,976	\$0	\$22,294	\$10,644
Aclaris Therapeutics, Inc.	\$24,916	\$0	\$33,172	\$21,773
Cook, Inc.	\$24,902	\$0	\$0	\$0
NanoVision Diagnostics, Inc.	\$24,829	\$0	\$0	\$0
Basic Carbide Corporation	\$24,697	\$0	\$22,947	\$22,947
Predictive Solutions Corp.	\$24,569	\$0	\$24,172	\$12,525
Miller Welding and Machine Company, Inc.	\$24,449	\$0	\$64,005	\$64,005
Hendrick Manufacturing Co.	\$24,366	\$0	\$0	\$0
Galera Therapeutics, Inc.	\$24,325	\$0	\$27,448	\$3,175
X-NAV Technologies, LLC	\$24,287	\$0	\$0	\$0
O3 World, LLC	\$24,253	\$0	\$0	\$0
Document Solutions Group, Inc.	\$24,143	\$0	\$47,321	\$0
Superior Tire Rubber Corp.	\$24,063	\$0	\$39,602	\$2
Philadelphia Tramrail Enterprises, Inc.	\$23,974	\$0	\$35,236	\$17,421
Superior Forge & Steel Corporation	\$23,789	\$0	\$56,804	\$34
John R. Bromiley Company, Inc.	\$23,709	\$0	\$0	\$0
Leidos, Inc.	\$23,591	\$0	\$24,174	\$6,684
Audience Partners, LLC	\$23,360	\$0	\$53,770	\$389
DF Stauffer Biscuit Co., Inc.	\$23,354	\$0	\$0	\$0
Berry Plastics SP, Inc.	\$23,345	\$0	\$63,918	\$0
Pennsylvania Electric Company	\$23,344	\$0	\$0	\$0
Pennsylvania Power Company	\$23,343	\$0	\$0	\$0
Atrin Pharmaceuticals, LLC	\$23,205	\$0	\$9,145	\$9,145
Gamry Instruments, Inc.	\$23,195	\$0	\$126,101	\$63,905
Quaker Sales Corporation	\$23,118	\$0	\$0	\$0
Enclara Pharmacia (f/k/a ExcelleRx, Inc.)	\$22,943	\$0	\$0	\$0
Institute for Musculoskeletal Science and Education, LLC	\$22,869	\$0	\$29,976	\$29,976
Mainstream Swimsuits, Inc.	\$22,844	\$0	\$8,614	\$0
FlowMetric Diagnostics, Inc.	\$22,826	\$0	\$10,980	\$10,980
Triumvirate Environmental, Inc.	\$22,518	\$0	\$0	\$0
IMG Midstream, LLC	\$22,460	\$0	\$0	\$0
Techniserv, Inc.	\$22,425	\$0	\$116,389	\$116,389
Northway Industries, Inc.	\$22,299	\$0	\$0	\$0
AMETEK Technical & Industrial Products, Inc.	\$22,281	\$0	\$1,000	\$1,000
OptimalOps, Inc.	\$22,140	\$0	\$0	\$0
VASCOR, Inc.	\$22,124	\$0	\$0	\$0
Fres-Co System USA, Inc.	\$22,102	\$0	\$0	\$0
Akzo Nobel Coatings, Inc.	\$22,096	\$0	\$12,186	\$10,337
Smithwise, Inc.	\$22,071	\$0	\$0	\$0
Crayola, LLC	\$21,841	\$0	\$103,828	\$19,733
CryoConcepts, LP	\$21,767	\$0	\$27,463	\$27,463
Chelsea Building Products, Inc.	\$21,650	\$0	\$10,486	\$10,486
TB Biosciences, Inc.	\$21,648	\$0	\$0	\$0
Ratex Business Solutions	\$21,484	\$0	\$136,787	\$96,418
Specialty Coated Products, Inc.	\$21,267	\$0	\$0	\$0
Forms and Surfaces, Inc.	\$21,181	\$0	\$12,922	\$11,178
ArtSkills, Inc.	\$21,066	\$0	\$39,225	\$3,357

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Clark Associates, Inc.	\$21,049	\$0	\$0	\$0
NewAge Industries, Inc.	\$20,960	\$0	\$17,888	\$220
KW, Inc.	\$20,810	\$0	\$68,413	\$68,413
Straight Arrow Products, Inc.	\$20,786	\$0	\$22,132	\$444
MeetBall, LLC	\$20,758	\$0	\$0	\$0
Proconex Acquisition, Inc.	\$20,693	\$0	\$0	\$0
Atomic Design, Inc.	\$20,618	\$0	\$0	\$0
E.A. Fischione Instruments, Inc.	\$20,534	\$0	\$32,826	\$7,348
Climatech Holding Company, Inc.	\$20,487	\$0	\$17,718	\$6,144
Georgeko Industries, Inc.	\$20,274	\$0	\$41,774	\$41,774
SpiralGen, Inc.	\$20,241	\$0	\$52,147	\$52,147
TherimuneX Pharmaceuticals, Inc.	\$20,077	\$0	\$0	\$0
Jako Enterprises, Ltd.	\$20,062	\$0	\$13,494	\$0
Horizon Signal Technologies, Inc.	\$20,045	\$0	\$21,062	\$10,821
Guru Technologies, Inc.	\$19,970	\$0	\$0	\$0
Scheerer Bearing Corporation	\$19,958	\$0	\$31,944	\$1,944
Phoenix Contact Development & Manufacturing, Inc.	\$19,891	\$0	\$247,719	\$0
Acopian Technical Company	\$19,802	\$0	\$10,124	\$10,124
A H Sportswear Co., Inc.	\$19,785	\$0	\$25,392	\$429
Expil, Inc.	\$19,607	\$0	\$0	\$0
Positek RFID, LP	\$19,603	\$0	\$16,889	\$16,889
Nielsen-Kellerman, Co.	\$19,575	\$0	\$23,442	\$0
DNP Imagingcomm America Corporation	\$19,550	\$0	\$0	\$0
Central Hydraulics, Inc.	\$19,343	\$0	\$0	\$0
PDC Machines, Inc.	\$19,201	\$0	\$32,481	\$22,087
Primbio Research Institute, LLC	\$19,095	\$0	\$25,271	\$25,271
Five Eleven Pharma, Inc.	\$19,092	\$0	\$0	\$0
Armstrong Utilities, Inc.	\$18,941	\$0	\$8,685	\$0
Vastex International, Inc.	\$18,906	\$0	\$0	\$0
Saturn Design Group, LLC (d/b/a ADDREXX)	\$18,645	\$0	\$0	\$0
VT Graphics, Inc.	\$18,630	\$0	\$34,147	\$426
Max Levy Autograph, Inc.	\$18,606	\$0	\$16,328	\$1,138
Luxtech, LLC	\$18,542	\$0	\$21,212	\$21,212
Orbweaver Sourcing, LLC	\$18,521	\$0	\$9,942	\$9,942
CRC Industries, Inc.	\$18,497	\$0	\$0	\$0
Marketing G2, LLC	\$18,405	\$0	\$0	\$0
Cornell Iron Works, Inc.	\$18,352	\$0	\$30,698	\$612
Near-Miss Management, LLC	\$18,310	\$0	\$22,460	\$22,460
Havis, Inc.	\$18,272	\$0	\$11,672	\$6,336
ZSX Medical, LLC	\$18,210	\$0	\$121,103	\$116,470
Casual Living Unlimited, LLC	\$18,008	\$0	\$0	\$0
Aerzen USA Corporation	\$17,965	\$0	\$8,963	\$8,963
DVCC, Inc. and Subsidiaries	\$17,951	\$0	\$0	\$0
InvestEdge, Inc.	\$17,918	\$0	\$64,206	\$63,936
American Refining Group, Inc.	\$17,648	\$0	\$0	\$0
Parker Hannifin Corporation	\$17,586	\$0	\$15,129	\$0
Readeeming Beauty, Inc. (d/b/a Beautyblender)	\$17,494	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Philly Shipyard, Inc. (f/k/a Aker Philadelphia Shipyard)	\$17,265	\$0	\$0	\$0
Specialty Tires of America - PA	\$17,214	\$0	\$0	\$0
Office Basics, Inc.	\$17,093	\$0	\$0	\$0
Blade Diagnostics Corporation	\$16,940	\$0	\$0	\$0
CDM Smith, Inc.	\$16,900	\$0	\$0	\$0
A&A Construction Co., Inc.	\$16,863	\$0	\$38,177	\$36,102
IMET Corporation	\$16,856	\$0	\$0	\$0
Global Metal Powders, LLC	\$16,836	\$0	\$24,211	\$24,211
Qortek, Inc.	\$16,825	\$0	\$54,135	\$23,312
Oberon, Inc.	\$16,819	\$0	\$70,080	\$17,780
Gateway Ticketing Systems, Inc.	\$16,753	\$0	\$0	\$0
General Carbide Corporation	\$16,617	\$0	\$27,526	\$27,526
Lucas Systems, Inc.	\$16,549	\$0	\$6,020	\$2,021
Lincoln Contracting & Equipment Co., Inc.	\$16,549	\$0	\$21,098	\$0
Delta Information Systems, Inc.	\$16,540	\$0	\$0	\$0
NVIDIA Corporation	\$16,459	\$0	\$81	\$0
Woodward McCoach, Inc.	\$16,435	\$0	\$0	\$0
Ansaldo STS USA, Inc.	\$16,414	\$0	\$83,141	\$83,141
VoIPstreet, Inc.	\$16,409	\$0	\$44,464	\$6,044
Magnesita Refractories Company	\$16,067	\$0	\$179,728	\$179,728
Griff & Associates, LP	\$15,971	\$0	\$0	\$0
David Horn, LLC	\$15,867	\$0	\$0	\$0
MESH, Inc.	\$15,828	\$0	\$0	\$0
Centroid Corporation	\$15,767	\$0	\$45,661	\$28,979
Savage Visual Effects, LLC	\$15,751	\$0	\$16,179	\$16,179
Connection Energy, LLC	\$15,727	\$0	\$0	\$0
Channellock, Inc.	\$15,712	\$0	\$55,192	\$1,425
Thompsons Candle Co.	\$15,594	\$0	\$31,861	\$249
Port Erie Plastics, Inc.	\$15,583	\$0	\$8,258	\$8,258
SJ Consulting Group, Inc.	\$15,514	\$0	\$11,269	\$633
NCA Technologies, Inc.	\$15,493	\$0	\$5,613	\$5,613
Netzsch USA Holdings, Inc.	\$15,490	\$0	\$0	\$0
Safran Publishing Company	\$15,439	\$0	\$0	\$0
American Textile Company, Inc.	\$15,390	\$0	\$7,000	\$4,580
Iagnosis, Inc.	\$15,302	\$0	\$73,011	\$73,011
Penn Engineering and Manufacturing Corp.	\$15,289	\$0	\$11,588	\$1,882
Intuitive Surgical Operations, LLC	\$15,151	\$0	\$0	\$0
Clair Bros. Audio Enterprises, Inc.	\$15,077	\$0	\$12,772	\$0
PSI Pumping Solutions, Inc.	\$14,904	\$0	\$64,107	\$63,189
RLC Electronic Systems, Inc.	\$14,899	\$0	\$0	\$0
Bracalentes Manufacturing Co., LLC	\$14,849	\$0	\$9,044	\$9,044
Glenn O. Hawbaker, Inc.	\$14,844	\$0	\$0	\$0
Innovative Supply Solutions, LLC	\$14,796	\$0	\$0	\$0
Irene's Bakery & Gourment Kitchen, Inc.	\$14,752	\$0	\$0	\$0
Robomatter, Inc.	\$14,683	\$0	\$0	\$0
Ashley Furniture Industries, Inc.	\$14,315	\$0	\$38,700	\$0
Siemens Industry, Inc.	\$14,312	\$0	\$0	\$0
Hessian Co., Ltd.	\$14,306	\$0	\$0	\$0
Tyndale Enterprises, Inc.	\$14,263	\$0	\$20,767	\$5,118
The Lackner Group, Inc.	\$14,231	\$0	\$20,128	\$0
Professional Staffing Solutions, LLC	\$14,180	\$0	\$20,645	\$20,645

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
VeryApt, Inc.	\$14,159	\$0	\$0	\$0
ThreeRivers 3D, Inc.	\$14,149	\$0	\$26,643	\$246
Sentinel Holding, Inc.	\$14,143	\$0	\$0	\$0
Dyco, Inc.	\$14,130	\$0	\$17,632	\$17,632
1DA (1DigitalAgency)	\$14,102	\$0	\$0	\$0
Penn Color, Inc.	\$14,060	\$0	\$9,927	\$3,506
Double H Plastics, Inc.	\$14,011	\$0	\$0	\$0
FTS Holding Corporation	\$13,918	\$0	\$78,128	\$45,522
Harold Beck & Sons, Inc.	\$13,917	\$0	\$21,302	\$14,243
PhaseBio Pharmaceuticals, Inc.	\$13,903	\$0	\$15,786	\$818
Orthos Enterprises, Inc.	\$13,868	\$0	\$6,470	\$6,470
Harry Miller Corporation	\$13,727	\$0	\$24,299	\$0
Nutrisystem, Inc.	\$13,714	\$0	\$0	\$0
Solar Technology, Inc.	\$13,679	\$0	\$16,993	\$10
R D Coatings, Inc.	\$13,661	\$0	\$13,205	\$13,205
Guardian Protection Services, Inc.	\$13,641	\$0	\$16,815	\$0
Chromalox, Inc.	\$13,627	\$0	\$25,585	\$0
Universal Industrial Gases, Inc.	\$13,550	\$0	\$0	\$0
Breen Energy Solutions, LLC	\$13,532	\$0	\$0	\$0
SKC, Inc.	\$13,506	\$0	\$16,393	\$4,213
CMT Laboratories, Inc.	\$13,501	\$0	\$28,399	\$28,390
Eminence Entertainment Enterprises, LLC	\$13,392	\$0	\$0	\$0
Motionway, Inc. (d/b/a Upstage Video)	\$13,361	\$0	\$0	\$0
Zeigler Bros., Inc.	\$13,357	\$0	\$0	\$0
Aspire Bariatrics, Inc.	\$13,293	\$0	\$0	\$0
ExecutivePulse, Inc.	\$13,203	\$0	\$26,205	\$26,205
Clear-Coat, LLC	\$13,137	\$0	\$66,886	\$214
Problem Solutions, LLC	\$13,078	\$0	\$8,776	\$583
Minteq International, Inc.	\$13,021	\$0	\$34,773	\$11,892
Lebanon Tool Company, Inc.	\$12,952	\$0	\$15,557	\$2,550
M-Mech Defense, Inc.	\$12,951	\$0	\$79,476	\$79,476
Martins Famous Pastry Shoppe, Inc.	\$12,951	\$0	\$26,799	\$3,581
Telex Metals, LLC	\$12,939	\$0	\$0	\$0
VECTR Research, LLC	\$12,923	\$0	\$0	\$0
Aggregates Equipment, Inc.	\$12,871	\$0	\$0	\$0
Maxx Orthopedics, Inc.	\$12,866	\$0	\$0	\$0
Innovative Office Products, LLC	\$12,850	\$0	\$6,538	\$0
Beckman Coulter, Inc.	\$12,825	\$0	\$0	\$0
Godshalls Quality Meats, Inc.	\$12,799	\$0	\$17,525	\$17,525
Ecore International, Inc.	\$12,790	\$0	\$4,915	\$852
J. Computing, Inc. (d/b/a Juola & Associates)	\$12,766	\$0	\$0	\$0
PHRQL, Inc.	\$12,765	\$0	\$0	\$0
Jarus Technologies Incorporated	\$12,593	\$0	\$14,828	\$9,325
Reading Precast, Inc.	\$12,586	\$0	\$17,147	\$17,147
Epiphany Solar Water Systems, LLC	\$12,568	\$0	\$111,938	\$111,938
Superior Plastic Products, Inc.	\$12,525	\$0	\$30,653	\$17,158
ProMinent Fluid Controls, Inc.	\$12,493	\$0	\$23,943	\$23,943
Matric Limited	\$12,461	\$0	\$20,598	\$7,584
Uni-Tec Consulting Engineers, Inc.	\$12,430	\$0	\$21,333	\$21,333
Sunny Dell Foods, Inc.	\$12,411	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Noble Medical, LLC	\$12,301	\$0	\$13,402	\$0
Laminar Flow, Inc.	\$12,268	\$0	\$22,444	\$15,969
Hermance Strouse, Inc.	\$12,260	\$0	\$12,893	\$9,694
C.U.E., Inc.	\$12,189	\$0	\$29,463	\$15,807
Array Architects, Inc.	\$12,182	\$0	\$0	\$0
Matrix PDM Engineering, Inc.	\$12,159	\$0	\$0	\$0
Bettwy Electric, Inc.	\$12,134	\$0	\$38,390	\$38,350
Marine Acquisition (US) Incorporated	\$12,129	\$0	\$11,695	\$0
Emphasys Technologies	\$12,060	\$0	\$25,272	\$25,272
Center Hardwood, LLC	\$11,946	\$0	\$23,300	\$23,300
Camco Manufacturing, Inc.	\$11,933	\$0	\$52,340	\$41,310
Advanced Manufacturing Technologies	\$11,835	\$0	\$0	\$0
Trigon Plastics, Inc.	\$11,827	\$0	\$0	\$0
Effort Enterprises, Inc.	\$11,800	\$0	\$36,104	\$35
O.F. Zurn Company	\$11,787	\$0	\$5,651	\$5,651
Advanced Textile Composites, Inc.	\$11,770	\$0	\$20,436	\$20,436
Gap Holding Company, Inc.	\$11,641	\$0	\$14,294	\$10,361
VideoRay, LLC	\$11,593	\$0	\$69,790	\$756
SAS Institute, Inc.	\$11,550	\$0	\$31,339	\$18,798
DMLogic, LLC	\$11,534	\$0	\$0	\$0
Biomeme, Inc.	\$11,533	\$0	\$37,874	\$0
Torchlight Technology Group, LLC	\$11,530	\$0	\$2,010	\$0
Medical Products Laboratories, Inc.	\$11,488	\$0	\$18,180	\$1,152
Beiler Hydraulics, Inc.	\$11,483	\$0	\$26,002	\$5,434
Aqua ChemPacs, LLC	\$11,453	\$0	\$0	\$0
Kieran Timberlake Associates, LLP	\$11,394	\$0	\$15,870	\$12,591
BioMagnetic Solutions, LLC	\$11,385	\$0	\$22,844	\$22,844
Whitley East, LLC	\$11,257	\$0	\$0	\$0
Matthews International Corporation	\$11,251	\$0	\$0	\$0
West Pharmaceutical Services, Inc. (PA)	\$11,192	\$0	\$0	\$0
Biochem Insights, Inc.	\$11,191	\$0	\$0	\$0
Thrive Commerce, LLC	\$11,093	\$0	\$0	\$0
Laboratory Testing, Inc.	\$11,086	\$0	\$19,768	\$19,768
Bliley Technologies Incorporated (Bliley Electric Corporation)	\$11,080	\$0	\$17,621	\$13,733
Edgemate, Inc.	\$11,055	\$0	\$0	\$0
Reclamere, Inc.	\$11,034	\$0	\$34,521	\$34,521
Specialty Minerals, Inc.	\$11,031	\$0	\$27,207	\$5,999
Sinterfire, Inc.	\$11,024	\$0	\$7,596	\$7,596
Latrobe Specialty Metals Company	\$10,775	\$0	\$0	\$0
Cleaversoft	\$10,747	\$0	\$0	\$0
Accusource, LLC	\$10,702	\$0	\$0	\$0
QuadGen Wireless Solutions	\$10,689	\$0	\$0	\$0
Graybills Tool & Die, Inc.	\$10,671	\$0	\$103,272	\$12,085
Finish Thompson, Inc.	\$10,641	\$0	\$4,420	\$1,469
US Specialty Formulations, LLC	\$10,569	\$0	\$0	\$0
Solid State Ceramics, Inc.	\$10,475	\$0	\$0	\$0
General Dynamics SATCOM Technologies, Inc.	\$10,393	\$0	\$0	\$0
Crystalplex Corporation	\$10,382	\$0	\$4,129	\$0
E.K. Bare & Sons, Inc.	\$10,329	\$0	\$11,133	\$11,133

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Liquid X Printed Metals, Inc.	\$10,274	\$0	\$23,044	\$0
Nuventive, LLC	\$10,252	\$0	\$0	\$0
Materion Brush, Inc.	\$10,225	\$0	\$1,230	\$559
General Nutrition Corporation	\$10,187	\$0	\$0	\$0
Weaver Companies, Inc.	\$10,179	\$0	\$22,703	\$0
Neville Chemical Company	\$10,175	\$0	\$5,828	\$580
Erie Custom Computer Applications	\$10,174	\$0	\$0	\$0
Electro Soft, Inc.	\$10,108	\$0	\$0	\$0
Project Execution Network, LLC	\$10,026	\$0	\$14,795	\$0
Whitford Corporation	\$9,926	\$0	\$20,576	\$6,193
Schneider, Inc.	\$9,882	\$0	\$0	\$0
Flowserve US, Inc.	\$9,836	\$0	\$0	\$0
Meeker Holding Company, Inc.	\$9,742	\$0	\$0	\$0
Grudi Associates, Inc.	\$9,709	\$0	\$0	\$0
Optimus Technologies, LLC	\$9,693	\$0	\$3,146	\$0
MainLineDelivery.com	\$9,676	\$0	\$0	\$0
Diversified Coatings, Inc.	\$9,660	\$0	\$70,480	\$28,480
Contec Systems Industrial Corp.	\$9,593	\$0	\$3,908	\$322
J&R Acquisition Corp.	\$9,569	\$0	\$0	\$0
TSE, Inc.	\$9,545	\$0	\$30,040	\$15,572
ChromaTan, Inc.	\$9,533	\$0	\$20,519	\$20,519
Beaver Steel Services, Inc.	\$9,503	\$0	\$37,422	\$5,973
Innovative Control Systems, Inc.	\$9,474	\$0	\$29,497	\$20,114
PRL, Inc.	\$9,428	\$0	\$209	\$0
Melior Pharmaceuticals I, Inc.	\$9,380	\$0	\$2,302	\$2,302
Sussex Wire, Inc.	\$9,292	\$0	\$17,920	\$17,920
SmartyPal, Inc.	\$9,264	\$0	\$0	\$0
Cellco Partnership	\$9,233	\$0	\$116,677	\$49,641
Ohm-Labs, Inc.	\$9,180	\$0	\$0	\$0
Castle Mold and Tool, Inc.	\$9,160	\$0	\$22,702	\$1,062
The Dial Corporation	\$9,033	\$0	\$0	\$0
Environmental Energy Solutions, LLC	\$8,977	\$0	\$0	\$0
Refrigeration Design & Service, Inc.	\$8,977	\$0	\$0	\$0
AutoSoft, Inc.	\$8,909	\$0	\$83,432	\$20,309
Bettwy Systems, Inc.	\$8,908	\$0	\$47,625	\$37,944
St. Marys Tool and Die, Inc.	\$8,852	\$0	\$35,479	\$35,479
Chemcut Holdings, LLC	\$8,822	\$0	\$29,514	\$29,457
Treatspace, Inc.	\$8,739	\$0	\$0	\$0
St. Marys Box Company	\$8,729	\$0	\$0	\$0
Luzerne Farm, LLC	\$8,713	\$0	\$0	\$0
Pure Fishing, Inc.	\$8,711	\$0	\$7,403	\$7,403
Cummins-Allison Corp.	\$8,700	\$0	\$52,937	\$52,937
Stein Seal Company	\$8,684	\$0	\$24,312	\$538
Stock, Garber and Associates, Inc.	\$8,609	\$0	\$45,697	\$45,697
R.M. Palmer Company	\$8,595	\$0	\$8,158	\$0
Social Media Information, LLC	\$8,506	\$0	\$18,178	\$18,178
Dawar Technologies, Inc.	\$8,434	\$0	\$0	\$0
Diamond Kinetics, Inc.	\$8,322	\$0	\$37,697	\$37,697
Jay Fulkroad and Sons, Inc.	\$8,261	\$0	\$19,975	\$12,064
Armstrong Accuspec, LLC	\$8,231	\$0	\$0	\$0
Huston, Inc.	\$8,171	\$0	\$43,003	\$24,761

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Pasco Tool & Plastics, Inc.	\$8,162	\$0	\$202,562	\$70,163
Blair Companies	\$8,109	\$0	\$5,620	\$1,693
Rochling Machined Plastics, LP	\$8,100	\$0	\$0	\$0
Rosenberger of North America, LLC	\$8,082	\$0	\$28,113	\$19,303
Torvian, Inc.	\$8,060	\$0	\$0	\$0
MicroMold Co., Inc.	\$8,026	\$0	\$28,612	\$0
Zivtech, LLC	\$8,001	\$0	\$0	\$0
Vitrius Technologies, LLC	\$8,000	\$0	\$3,157	\$3,157
Crompco, LLC	\$7,973	\$0	\$0	\$0
Just Born, Inc.	\$7,870	\$0	\$22,404	\$0
Zausner Foods Corp and Subsidiaries, Inc.	\$7,860	\$0	\$16,514	\$12,496
Harbor Business Compliance Corp.	\$7,843	\$0	\$0	\$0
C&R Directional Boring, LLC	\$7,827	\$0	\$8,126	\$8,126
K&H Technologies, Inc.	\$7,827	\$0	\$81,147	\$63,544
AquaPhoenix Scientific, Inc.	\$7,824	\$0	\$0	\$0
Structural Services, Inc.	\$7,768	\$0	\$7,781	\$575
VaxForm, LLC	\$7,765	\$0	\$26,214	\$10,708
Haller Enterprises , Inc.	\$7,692	\$0	\$0	\$0
Radius Corporation	\$7,559	\$0	\$99,652	\$99,652
Dun and Bradstreet, Inc.	\$7,546	\$0	\$163,793	\$163,793
Reynolds & Reynolds Electronics, Inc.	\$7,482	\$0	\$67,216	\$36,741
MGS, Inc.	\$7,469	\$0	\$6,404	\$4,015
Richardson Cooling Packages, LLC	\$7,423	\$0	\$11,913	\$3,807
Conewago Enterprises, Inc.	\$7,414	\$0	\$0	\$0
Somerset Welding and Steel	\$7,397	\$0	\$0	\$0
Solenoid Solutions, Inc.	\$7,319	\$0	\$31,161	\$15,455
French Creek Production, Inc.	\$7,229	\$0	\$9,482	\$61
Specialty Fabrication and Powder Co.	\$7,228	\$0	\$0	\$0
Paul B. Zimmerman, Inc.	\$7,217	\$0	\$2,794	\$523
Perficient, Inc.	\$7,205	\$0	\$24,948	\$24,948
Qualaris Healthcare Solutions, Inc.	\$7,164	\$0	\$0	\$0
Bostock Company, Inc.	\$7,158	\$0	\$0	\$0
Jeannette Shade and Novelty Company (d/b/a JSG Oceana)	\$7,155	\$0	\$1,448	\$1,448
Ateeco, Inc.	\$7,132	\$0	\$0	\$0
Doutt Tool, Inc.	\$7,127	\$0	\$29,607	\$0
StelKast, Inc.	\$7,095	\$0	\$0	\$0
InspiraFS, Inc.	\$7,087	\$0	\$6,618	\$0
GlobalPOPS, Inc.	\$7,079	\$0	\$30,204	\$30,142
TB Woods Incorporated	\$7,078	\$0	\$1,482	\$0
Bore Tech, Inc.	\$7,006	\$0	\$65,979	\$3,310
Lobar Associates, Inc.	\$7,000	\$0	\$22,127	\$22,127
Industry Weapon, Inc.	\$6,976	\$0	\$32,056	\$738
Penn Wood Products, Inc.	\$6,954	\$0	\$8,433	\$8,433
eDocs Technologies	\$6,952	\$0	\$0	\$0
Conversant Labs, LLC	\$6,945	\$0	\$0	\$0
Blue Ridge Pressure Castings, Inc.	\$6,933	\$0	\$8,917	\$5,720
Dynamic Concepts Manufacturing, LLC	\$6,800	\$0	\$0	\$0
Innovative Sintered Metals, Inc.	\$6,749	\$0	\$33,248	\$33,248
KermiTool Acquisition Company, Inc.	\$6,681	\$0	\$13,919	\$3,157
Saladax Biomedical, Inc	\$6,670	\$0	\$75,076	\$28,620
Aero Tech Designs, Inc.	\$6,649	\$0	\$11,652	\$11,486

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Epic Web Studios	\$6,625	\$0	\$26,875	\$26,875
Artsana USA, Inc.	\$6,610	\$0	\$4,882	\$4,882
LifeVest Health, Inc. (d/b/a Life.io)	\$6,517	\$0	\$0	\$0
Deibler Machining, LLC	\$6,492	\$0	\$0	\$0
Hydro-Spray Wash Systems, Inc.	\$6,433	\$0	\$22,306	\$16,172
Orthofix, Inc.	\$6,236	\$0	\$0	\$0
Boose Aluminum Foundry Co., Inc.	\$6,226	\$0	\$4,298	\$0
Timac Agro USA, Inc.	\$6,215	\$0	\$0	\$0
R.G. Steel Corp.	\$6,165	\$0	\$12,924	\$12,924
CM3 Building Solutions, Inc.	\$6,103	\$0	\$6,864	\$6,864
Production System Technologies, Inc.	\$6,078	\$0	\$0	\$0
Fairmount Foundry, Inc.	\$6,054	\$0	\$16,355	\$16,355
BoardBookit, Inc.	\$6,010	\$0	\$7,255	\$0
Laminators Incorporated	\$5,988	\$0	\$4,284	\$355
Preferred Security Components, Inc.	\$5,987	\$0	\$3,999	\$3,999
Datto, Inc.	\$5,944	\$0	\$0	\$0
GJRPH, LP	\$5,909	\$0	\$0	\$0
Livegenic, Inc.	\$5,865	\$0	\$0	\$0
Boose at Cornwall, Inc.	\$5,831	\$0	\$766	\$766
DGNY, LLC Co. Govberg Jewelers	\$5,829	\$0	\$0	\$0
Big B Manufacturing, Inc.	\$5,818	\$0	\$9,659	\$0
AKAS Tex, LLC	\$5,804	\$0	\$0	\$0
Biocoat, Inc.	\$5,764	\$0	\$17,621	\$17,621
X-F Enterprises, Inc.	\$5,714	\$0	\$4,898	\$494
CJ Robinson Company	\$5,629	\$0	\$0	\$0
Clair Global Corporation (d/b/a Showco)	\$5,601	\$0	\$310	\$310
Eagle Metals, Inc. (f/k/a Eagle Brass Company)	\$5,579	\$0	\$18,989	\$18,989
Greener Days, LLC	\$5,573	\$0	\$0	\$0
Plastikos, Inc.	\$5,567	\$0	\$6,955	\$0
Touchtown, Inc.	\$5,566	\$0	\$66,812	\$66,812
Next Gauge, Inc.	\$5,546	\$0	\$0	\$0
Creative Bending Systems, Inc.	\$5,487	\$0	\$11,624	\$11,624
Innovative Systems, Inc.	\$5,475	\$0	\$0	\$0
PRL Industries, Inc.	\$5,464	\$0	\$4,589	\$0
Oliver-Tolas Healthcare Packaging, Inc.	\$5,463	\$0	\$0	\$0
Custom Processing Services, LLC	\$5,455	\$0	\$18,034	\$18,034
Viking Tool & Gage, Inc.	\$5,453	\$0	\$7,563	\$5,646
AllFill, Inc.	\$5,441	\$0	\$10,634	\$10,634
Caliber Therapeutics, Inc.	\$5,423	\$0	\$100,901	\$74,544
EduLink, Inc.	\$5,407	\$0	\$0	\$0
Sweet Note Bakery, Inc.	\$5,404	\$0	\$5,146	\$5,146
Power Conversion Technologies, Inc.	\$5,383	\$0	\$37,794	\$25,425
Covey, LLC	\$5,361	\$0	\$0	\$0
Wiggins Shredding, Inc.	\$5,320	\$0	\$0	\$0
Lobar Site Development Corporation	\$5,316	\$0	\$623	\$623
Matrix Operations, LLC (d/b/a Matrix Solutions)	\$5,305	\$0	\$6,419	\$1,165
Diamond MT, Inc.	\$5,278	\$0	\$3,772	\$3,772
SpinWorks International Corporation	\$5,265	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Houwzer, LLC	\$5,245	\$0	\$0	\$0
Go Green APU, LLC	\$5,226	\$0	\$36,366	\$36,360
Kane Innovations, Inc.	\$5,211	\$0	\$0	\$0
Psychology Software Tools, Inc.	\$5,138	\$0	\$73,198	\$73,198
Sentient Investment Corporation	\$5,135	\$0	\$32,502	\$32,502
Birdbrain Labs, LLC	\$5,106	\$0	\$2,080	\$2,080
Rapid TPC, LLC	\$5,074	\$0	\$0	\$0
Custom Processing Services, Inc.	\$5,037	\$0	\$27,182	\$27,182
Rushabh Instruments, LLC	\$5,018	\$0	\$12,844	\$7,304
Powerlytics, Inc.	\$4,984	\$0	\$25,326	\$25,326
Schlouch Incorporated	\$4,979	\$0	\$16,237	\$9,417
Erdman Anthony Associates, Inc.	\$4,962	\$0	\$3,248	\$3,248
M.H. Eby, Inc.	\$4,857	\$0	\$8,581	\$3,568
Modern Cabinet and Construction, Inc.	\$4,820	\$0	\$0	\$0
Novotech Construction, Inc.	\$4,794	\$0	\$21,499	\$21,499
Great Lakes Automation Services, Inc.	\$4,774	\$0	\$11,863	\$11,863
L.F. Lambert Spawn Company, Inc.	\$4,749	\$0	\$11,935	\$11,282
Try Tek Machine Works Incorporated	\$4,723	\$0	\$21,592	\$0
Green Harvest One Corporation	\$4,667	\$0	\$0	\$0
Advanced Cast Products	\$4,532	\$0	\$0	\$0
Right Reason Technologies, LLC	\$4,475	\$0	\$0	\$0
Omega Flex, Inc.	\$4,439	\$0	\$14,953	\$14,953
Pennoni Associates, Inc.	\$4,423	\$0	\$87,830	\$87,830
Newman & Company, Inc.	\$4,394	\$0	\$5,743	\$604
Lancaster Oil Company	\$4,367	\$0	\$14,881	\$6,789
Bitronics, LLC	\$4,356	\$0	\$14,618	\$6,251
Return Logic, Inc.	\$4,351	\$0	\$0	\$0
Sealstrip Corporation	\$4,345	\$0	\$5,438	\$5,438
Akustica, Inc.	\$4,342	\$0	\$142,267	\$34,740
Namsco Plastics Industries, Inc.	\$4,329	\$0	\$0	\$0
TechKnowServ Corporation	\$4,326	\$0	\$0	\$0
BirdBrain Technologies, LLC	\$4,307	\$0	\$9,650	\$9,458
Penn State Mechanical Contractors, Inc.	\$4,307	\$0	\$0	\$0
MCS Industries, Inc.	\$4,306	\$0	\$0	\$0
CorkGuru.com, LLC	\$4,292	\$0	\$4,333	\$0
SparkNET Technologies, LLC	\$4,285	\$0	\$0	\$0
Penn State Construction J&D, LLC	\$4,262	\$0	\$13,863	\$13,863
Carpenter Powder Products, Inc.	\$4,258	\$0	\$0	\$0
Wazoodle Fabrics, LLC	\$4,255	\$0	\$0	\$0
General Transervice, Inc.	\$4,241	\$0	\$12,440	\$1,950
S&S Processing, Inc.	\$4,227	\$0	\$5,038	\$539
STMicroelectronics, Inc.	\$4,225	\$0	\$0	\$0
Bosch Rexroth Corporation	\$4,165	\$0	\$337	\$53
Universal Refractories, Inc.	\$4,125	\$0	\$6,123	\$0
Lockhouse Network, Inc.	\$4,070	\$0	\$3,095	\$0
School Gate Guardian, Inc.	\$4,064	\$0	\$8,600	\$8,600
VascularStrategies, LLC	\$4,023	\$0	\$9,044	\$4,432
AP Thermoforming, LLC	\$4,000	\$0	\$3,524	\$0
Diamond Drinks, Inc.	\$3,986	\$0	\$2,530	\$0
Fabricated Components, Inc.	\$3,853	\$0	\$0	\$0
CDG Environmental, LLC	\$3,850	\$0	\$1,008	\$4

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Aberdeen Road Company	\$3,827	\$0	\$10,697	\$10,697
New Metro Design, LLC	\$3,815	\$0	\$5,975	\$5,975
LTL Wholesale, Inc.	\$3,795	\$0	\$3,014	\$3,014
Regal Cast, Inc.	\$3,764	\$0	\$8,111	\$0
Collegiate Furnishing, Inc.	\$3,715	\$0	\$23,520	\$23,520
Wheeler Bros., Inc.	\$3,677	\$0	\$0	\$0
Millenium Torque & Tensioning, Inc.	\$3,669	\$0	\$0	\$0
Crestline Software, LLC	\$3,660	\$0	\$23,350	\$6,025
Blair Roofing, Inc.	\$3,654	\$0	\$50,939	\$50,939
Proxicast, LLC	\$3,650	\$0	\$15,075	\$15,075
Teletracking Technologies, Inc.	\$3,619	\$0	\$26,082	\$26,082
Himes Diversified, LLC	\$3,595	\$0	\$11,224	\$11,224
Baldwin Publishing, Inc.	\$3,518	\$0	\$7,319	\$0
Montgomery Bros. Plumbing & Heating, LLC	\$3,437	\$0	\$9,353	\$9,353
Seraphim Software, LLC	\$3,388	\$0	\$0	\$0
Suntex International, Inc.	\$3,378	\$0	\$37,265	\$17,470
TLC North, LLC	\$3,374	\$0	\$10,755	\$10,755
AbiliLife, Inc.	\$3,329	\$0	\$0	\$0
Instrumentation Industries, Inc.	\$3,306	\$0	\$10,590	\$3,572
PDQ Industries, Inc.	\$3,287	\$0	\$7,001	\$777
G&B Specialties, Inc.	\$3,283	\$0	\$0	\$0
Dental Design Labs, Inc.	\$3,195	\$0	\$13,802	\$13,802
Architectural Polymers, Inc.	\$3,195	\$0	\$0	\$0
Altoona Roofing & Sheet Metal, Inc.	\$3,174	\$0	\$0	\$0
Delmont Laboratories, Inc.	\$3,143	\$0	\$8,441	\$0
Pittsburgh Technologies Group, Inc.	\$3,133	\$0	\$0	\$0
Lifestyle Foods, Inc.	\$3,124	\$0	\$0	\$0
Tyrone Milling	\$3,061	\$0	\$7,139	\$7,139
Embedded Energy Technology, LLC	\$3,050	\$0	\$12,417	\$12,417
Backflips, Inc.	\$2,979	\$0	\$5,002	\$2,936
Shopagogo, LLC	\$2,966	\$0	\$0	\$0
Sokolis Transportation Group, Inc.	\$2,952	\$0	\$0	\$0
Gonnella Baking Company	\$2,895	\$0	\$14,598	\$14,598
Georgia Pacific Corrugated, LLC	\$2,894	\$0	\$75	\$0
Terremark North America, LLC	\$2,846	\$0	\$0	\$0
Selas Heat Technology Company, LLC	\$2,815	\$0	\$0	\$0
Zephyr Aluminum, LLC	\$2,790	\$0	\$0	\$0
White Oak Mills, Inc.	\$2,785	\$0	\$0	\$0
Medtrics Lab, LLC	\$2,759	\$0	\$0	\$0
Henry Molded Products, Inc.	\$2,726	\$0	\$16,209	\$6,418
Trinity Industries, Inc.	\$2,645	\$0	\$0	\$0
Hanna Transfer Company North	\$2,615	\$0	\$3,629	\$27
Scientific Systems, Inc.	\$2,613	\$0	\$46,712	\$42,060
turnKey Taxes, Inc.	\$2,608	\$0	\$0	\$0
WavesinSolids, LLC	\$2,595	\$0	\$0	\$0
Solo Laboratories, Inc.	\$2,588	\$0	\$25,228	\$25,228
Train Control Systems, Inc.	\$2,499	\$0	\$21,582	\$13,751
Dynamic Manufacturing, LLC	\$2,434	\$0	\$3,309	\$0
Institute of Consultative Bioethics	\$2,392	\$0	\$15,419	\$15,419
Premier Automation, LLC	\$2,366	\$0	\$25,135	\$25,135
Acme Corrugated Box Co., Inc.	\$2,302	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Dew Fresh, Inc.	\$2,258	\$0	\$0	\$0
Daniel F Young, Inc.	\$2,235	\$0	\$0	\$0
weCreate, LLC	\$2,221	\$0	\$0	\$0
In The Stix Broadband, LLC	\$2,209	\$0	\$1,347	\$1,347
Gecko Robotics, LLC	\$2,174	\$0	\$0	\$0
Bald Eagle Precision, LLC	\$2,170	\$0	\$0	\$0
Weaver Industries, Inc.	\$2,153	\$0	\$1,742	\$0
VMWARE, Inc.	\$2,128	\$0	\$30,171	\$30,171
Mason Jars Company	\$2,127	\$0	\$4,331	\$4,331
OCTech, LLC	\$2,095	\$0	\$0	\$0
Future Foam, Inc.	\$2,094	\$0	\$0	\$0
FacioMetrics, LLC	\$2,057	\$0	\$0	\$0
Shorts Tool and Manufacturing, Inc.	\$2,031	\$0	\$41,098	\$2,311
R-V Industries, Inc.	\$1,977	\$0	\$12,500	\$3,118
Rapid Reaction, Inc.	\$1,965	\$0	\$3,536	\$2,027
McAdoo & Allen, Inc.	\$1,946	\$0	\$4,483	\$2,499
Flexible Compensators, Inc. (t/a Flex Com)	\$1,931	\$0	\$6,800	\$6,800
Greenwich Terminals, LLC	\$1,931	\$0	\$1,897	\$1,897
Raven Industries, Inc.	\$1,890	\$0	\$31,641	\$31,641
Cocalico Distribution, LLC	\$1,882	\$0	\$0	\$0
Briar Valley Vineyards and Winery, Inc.	\$1,846	\$0	\$4,627	\$4,627
ParaCoat Technologies, Inc.	\$1,797	\$0	\$2,218	\$1,668
Rorus, Inc.	\$1,759	\$0	\$0	\$0
Delserro Engineering Solutions, Inc.	\$1,732	\$0	\$4,330	\$4,330
Fluitron, Inc.	\$1,572	\$0	\$33,602	\$24,939
Easthill Specialty, Inc.	\$1,546	\$0	\$7,037	\$7,037
Impact Applications, Inc.	\$1,521	\$0	\$35,582	\$35,582
Online Store, Inc.	\$1,521	\$0	\$0	\$0
Bulk Chemicals, Inc.	\$1,509	\$0	\$17,098	\$12,705
Jacob A. Weaver Company	\$1,507	\$0	\$0	\$0
Curotec, LLC	\$1,453	\$0	\$1,525	\$0
Triumph Interiors, LLC	\$1,453	\$0	\$8,195	\$1,442
Newage Testing Instruments, Inc.	\$1,443	\$0	\$0	\$0
Smith Provision Co., Inc.	\$1,414	\$0	\$0	\$0
AMETEK, Inc.	\$1,398	\$0	\$159,981	\$91,610
Burrell Group, Inc.	\$1,316	\$0	\$0	\$0
CWE, Inc.	\$1,314	\$0	\$0	\$0
Defiance Metal Products of PA, Inc.	\$1,293	\$0	\$0	\$0
Qmac - Quality Machining, Inc.	\$1,278	\$0	\$28,916	\$20,744
Sylvin Technologies, Inc.	\$1,204	\$0	\$1,387	\$0
Rearick Tooling, Inc.	\$1,163	\$0	\$12,451	\$2,756
Hosler Corp.	\$1,162	\$0	\$10,084	\$10,084
Applied Educational Systems, Inc.	\$1,155	\$0	\$0	\$0
Piramal Critical Care, Inc.	\$1,147	\$0	\$0	\$0
Sled, Inc.	\$1,143	\$0	\$0	\$0
TekResults, Ltd.	\$1,136	\$0	\$2,415	\$2,120
Neuro-Genetics Institute, LLC	\$1,124	\$0	\$0	\$0
Spring City Electrical Mfg. Co.	\$1,117	\$0	\$9,529	\$4,560
Qrono, Inc.	\$1,076	\$0	\$2,976	\$2,976
W.W. Patterson Company	\$1,039	\$0	\$6,466	\$1,114
Multi-Plastics Extrusion, Inc.	\$1,017	\$0	\$12,683	\$2,683
CoyoteLight, Inc.	\$1,003	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Ckjk, LLC	\$998	\$0	\$0	\$0
American Manufacturing & Engineering Corporation	\$974	\$0	\$6,832	\$1,183
Giorgio Foods, Inc.	\$944	\$0	\$0	\$0
Composite Panels Innovations, LLC	\$898	\$0	\$0	\$0
Clinical Research Associates of Central PA, LLC	\$894	\$0	\$0	\$0
Canto Tool Corporation	\$891	\$0	\$0	\$0
Orion Security LSP, LLC	\$883	\$0	\$2,071	\$2,071
Pennlake Corporation (d/b/a R Conrader Company)	\$844	\$0	\$9,355	\$216
Henwil Corporation	\$796	\$0	\$0	\$0
Z3 Concepts	\$764	\$0	\$1,342	\$1,342
Epidarus Therapeutics	\$733	\$0	\$0	\$0
DynAccess Ltd.	\$705	\$0	\$0	\$0
Thomas Erie, Inc.	\$703	\$0	\$1,693	\$1,693
Advanced Fabrication Services, Inc.	\$673	\$0	\$18,963	\$18,963
General Polymeric Corporation	\$667	\$0	\$20,758	\$20,758
PTR Group, LP	\$659	\$0	\$17,095	\$17,095
Minus 100, LLC	\$647	\$0	\$1,766	\$0
Nascent Devices, LLC	\$636	\$0	\$11,370	\$11,370
DecisionVis, LLC	\$607	\$0	\$3,217	\$3,217
Shaffer Technologies, Inc.	\$604	\$0	\$0	\$0
Penn-Century, Inc.	\$601	\$0	\$1,188	\$1,188
Wolf Technologies, LLC	\$585	\$0	\$12,198	\$57
Suburban Tool & Die Co., Inc.	\$575	\$0	\$0	\$0
Woodward, Inc.	\$560	\$0	\$64,995	\$0
Kovatch Mobile Equipment Corp.	\$559	\$0	\$23,900	\$19,917
Mashup Technologies, LLC	\$557	\$0	\$1,152	\$1,152
Northpoint Distribution, LLC	\$539	\$0	\$165	\$87
Fidelity Flight Simulation Incorporated	\$538	\$0	\$276,694	\$0
Robert Mazza, Inc.	\$536	\$0	\$0	\$0
Flexcut Tool Co., Inc.	\$529	\$0	\$10,696	\$0
Panelshop.com, LLC	\$524	\$0	\$7,639	\$6,001
Boyesen, Inc.	\$513	\$0	\$11,010	\$11,010
Cronan Sheet Metal, Inc.	\$512	\$0	\$0	\$0
Matreya, LLC	\$468	\$0	\$596	\$596
Advanced Design, LLC	\$467	\$0	\$0	\$0
Wenzlau Engineering, Inc.	\$407	\$0	\$0	\$0
NovaProbe Incorporated	\$405	\$0	\$6,020	\$6,020
NH Laboratories, Inc.	\$362	\$0	\$0	\$0
Keystone Abrasives Co.	\$304	\$0	\$292	\$292
Peacock Laboratories	\$299	\$0	\$2,249	\$2,249
Thermal Engineering International USA	\$277	\$0	\$0	\$0
Payroll Command, LLC	\$263	\$0	\$0	\$0
Henkel Corporation	\$247	\$0	\$0	\$0
Edge Robotics, Inc.	\$225	\$0	\$3,967	\$83
Reaction Technologies, LLC	\$212	\$0	\$0	\$0
Adiaon, LLC	\$196	\$0	\$0	\$0
Huntingdon Fiberglass Products, LLC	\$193	\$0	\$2,230	\$0
Tiger Optics, Inc.	\$180	\$0	\$0	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Levan Machine Co., Inc.	\$159	\$0	\$1,590	\$1,262
Shift Collaborative, Inc.	\$150	\$0	\$0	\$0
Lunchtime Software, LLC	\$150	\$0	\$9,755	\$1,306
Riley Power, Inc.	\$148	\$0	\$0	\$0
Wesanda Design, Inc.	\$138	\$0	\$383	\$0
BSC Technologies, Inc.	\$120	\$0	\$2,142	\$0
Babcock Power Environmental	\$113	\$0	\$0	\$0
NetBeez, Inc.	\$95	\$0	\$7,891	\$7,891
ActivAided Orthotics, LLC	\$46	\$0	\$7,245	\$7,245
Tri-City Marble, LLC	\$41	\$0	\$1,507	\$1,115
ABB, Inc.	\$0	\$0	\$113,488	\$113,488
Abbott Furnace Company, Inc.	\$0	\$0	\$5,942	\$5,942
Accel Diagnostics, LLC	\$0	\$0	\$5,911	\$5,911
Adaptive Resources, Inc.	\$0	\$0	\$1,784	\$0
Ad-Base Group, Inc. (d/b/a ABG Capital)	\$0	\$0	\$30,910	\$30,910
Adelphi Kitchens, Inc.	\$0	\$0	\$6,203	\$6,203
Advanced Controls & Distribution, LLC	\$0	\$0	\$19,845	\$19,845
Adventus Technology, Inc.	\$0	\$0	\$292	\$0
Aethon, Inc.	\$0	\$0	\$9,324	\$17
AGC Chemicals Americas, Inc.	\$0	\$0	\$32,168	\$6,814
Agricultural Systems International	\$0	\$0	\$1,184	\$307
AgroFresh, Inc.	\$0	\$0	\$59,371	\$59,371
Akzo Nobel Services, Inc.	\$0	\$0	\$1,846	\$0
Alcoa, Inc.	\$0	\$0	\$872,235	\$23,614
Alcoil USA, LLC	\$0	\$0	\$10,361	\$0
Alertek, LLC	\$0	\$0	\$10,713	\$1,414
All-American Hose, LLC	\$0	\$0	\$10,049	\$271
Allomet Corporation	\$0	\$0	\$19,690	\$0
Alpha Aromatics, Inc.	\$0	\$0	\$24,957	\$24,957
American Hydro Corporation	\$0	\$0	\$2,723	\$2,723
American Turned Products, Inc.	\$0	\$0	\$7,430	\$3,715
Amgen USA, Inc.	\$0	\$0	\$3,556	\$3,556
Amgen, Inc.	\$0	\$0	\$608,537	\$3,829
Amity Industries, Inc.	\$0	\$0	\$9,974	\$9,974
Amphenol Thermometrics, Inc.	\$0	\$0	\$53,709	\$0
Analytical Graphics, Inc.	\$0	\$0	\$90,337	\$0
ANRO, Inc.	\$0	\$0	\$13,721	\$1,318
API Technologies Corp.	\$0	\$0	\$21,484	\$3,895
Appcove, Inc.	\$0	\$0	\$19,784	\$9,668
Applied Clinical Intelligence, LLC	\$0	\$0	\$10,781	\$10,781
Applied Geology and Environmental Sciences, Inc.	\$0	\$0	\$155,153	\$7,276
Apprise Software, Inc.	\$0	\$0	\$17,821	\$1,873
Aptagen, LLC	\$0	\$0	\$9,035	\$9,035
Aquatech International Corporation	\$0	\$0	\$18,126	\$18,126
ASC Group, Inc.	\$0	\$0	\$7,397	\$10
Ascent Bio-Nano Technologies, Inc.	\$0	\$0	\$26,260	\$4,073
Ashland Foundry Machine Works, Inc.	\$0	\$0	\$4,805	\$0
AssetWorks, Inc.	\$0	\$0	\$61,099	\$0
Assistive Technology Products, Inc.	\$0	\$0	\$24,141	\$24,141
ATI Operating Holdings, LLC	\$0	\$0	\$364,505	\$0
Atlas Minerals & Chemicals, Inc.	\$0	\$0	\$2,628	\$2,628

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Autodesk, Inc.	\$0	\$0	\$103,328	\$13,247
Auxilium Pharmaceuticals, Inc.	\$0	\$0	\$493,713	\$15,185
BASF Corporation	\$0	\$0	\$37,504	\$0
BCL Manufacturing, Inc.	\$0	\$0	\$21,064	\$21,064
Beaumont Development, LLC	\$0	\$0	\$8,273	\$8,273
Berwind Corporation	\$0	\$0	\$16,021	\$7,963
Better Bowls, LLC	\$0	\$0	\$7,870	\$7,870
Bio Med Sciences, Inc.	\$0	\$0	\$13,921	\$10,244
BioConnect Systems, Inc.	\$0	\$0	\$57,408	\$393
Bio-Pharm Incorporated	\$0	\$0	\$14,412	\$14,412
Blair Strip Steel Co.	\$0	\$0	\$30,378	\$13,706
Boehringer Ingelheim Pharmaceuticals, Inc.	\$0	\$0	\$4,825	\$0
Bosch Security Systems, Inc.	\$0	\$0	\$8,071	\$4,035
Boulden Energy Systems, Inc.	\$0	\$0	\$45,451	\$41,314
Branch Medical Group, Inc.	\$0	\$0	\$43,909	\$43,909
Bra-Vor Tool & Die Company, Inc.	\$0	\$0	\$17,216	\$17,216
Brookville Equipment Corporation	\$0	\$0	\$45,154	\$35,252
Burrell Scientific, LLC	\$0	\$0	\$1,729	\$12
C&J Industries, Inc.	\$0	\$0	\$10,342	\$10,342
Caledonian Dye Works, Inc.	\$0	\$0	\$3,613	\$0
Callidus Biopharma, Inc.	\$0	\$0	\$98,490	\$0
Campus Door Holdings, Inc.	\$0	\$0	\$8,258	\$8,258
Carlisle Construction Materials Inc.	\$0	\$0	\$39,436	\$39,436
Carlisle Engineered Products, Inc.	\$0	\$0	\$19,297	\$0
Carnegie Robotics, LLC	\$0	\$0	\$70,096	\$9,457
Carpenter Technology Corporation	\$0	\$0	\$1,290,084	\$0
Caterpillar, Inc.	\$0	\$0	\$181,828	\$35,677
Cavanaugh Marketing Network, Inc. (d/b/a Cavanaugh)	\$0	\$0	\$21,356	\$21,356
CD Diagnostics, Inc.	\$0	\$0	\$45,794	\$45,794
CDC Integrated Technologies, LLC	\$0	\$0	\$3,653	\$65
CE Citycom	\$0	\$0	\$480,845	\$1,651
Cent, LLC	\$0	\$0	\$7,341	\$0
Certes Networks, Inc.	\$0	\$0	\$9,794	\$9,794
CESO, Inc. (f/k/a Civil Engineers of Southwest Ohio, Inc.)	\$0	\$0	\$1,673	\$0
CFS Holdings Corp.	\$0	\$0	\$66,475	\$14
ChemImage Corporation	\$0	\$0	\$20,357	\$0
Chick Workholding Solutions, Inc.	\$0	\$0	\$22,768	\$305
Circadiance, LLC	\$0	\$0	\$9,722	\$0
Clarion Sintered Metals, Inc.	\$0	\$0	\$19,920	\$19,920
Claritee Group, LLC	\$0	\$0	\$89,509	\$89,509
Clayton H. Landis Company, Inc. (c/o James D. Landis)	\$0	\$0	\$100,797	\$100,797
C-Levelled Associates Holdings, Inc.	\$0	\$0	\$9,017	\$9,017
Clinical Financial Services, LLC	\$0	\$0	\$4,175	\$4,175
CMR USA, Inc.	\$0	\$0	\$57,311	\$3,295
CNH Industrial America, LLC	\$0	\$0	\$897,163	\$897,163
Coating and Converting Technologies Corporation	\$0	\$0	\$10,260	\$10,260
Cohera Medical, Inc.	\$0	\$0	\$41,088	\$41,088
Coldlight Solutions, LLC	\$0	\$0	\$338,386	\$335,538

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Columbia Northwest, Inc.	\$0	\$0	\$990	\$990
Columbia Research Laboratories, Inc.	\$0	\$0	\$218	\$164
Combined Conditional Access Development	\$0	\$0	\$83,869	\$94
Combined Systems, Inc.	\$0	\$0	\$29,038	\$0
Comcast Corporation	\$0	\$0	\$183,052	\$12,409
Community Elf, LLC	\$0	\$0	\$49,764	\$49,764
Community Light and Sound, Inc.	\$0	\$0	\$38,080	\$17,387
Compu-Craft Fabricator, Inc.	\$0	\$0	\$4,563	\$16
Compunetix, Inc.	\$0	\$0	\$78,508	\$60,597
Control Concepts Corporation	\$0	\$0	\$148,865	\$148,865
Cook Vascular Corporation	\$0	\$0	\$11,982	\$0
Corcept Therapeutics, Inc.	\$0	\$0	\$10,708	\$28
Cover Crop Solutions, LLC	\$0	\$0	\$20,655	\$7,277
Crane Payment Innovations, Inc. (f/k/a MEI, Inc.)	\$0	\$0	\$69,164	\$43,985
Crescent Industries, Inc.	\$0	\$0	\$10,361	\$10,361
Crown Cork & Seal USA, Inc.	\$0	\$0	\$15,379	\$4,180
Crystal, Inc. - PMC	\$0	\$0	\$6,362	\$6,362
CS Trucking, LLC	\$0	\$0	\$1,408	\$16
CSD Engineers, LLC	\$0	\$0	\$76,842	\$6,906
CSE Corporation	\$0	\$0	\$27,753	\$1,674
CSLB Holdings, Inc.	\$0	\$0	\$568,385	\$0
Curry Supply Co.	\$0	\$0	\$70,154	\$58,321
Cyoptics, Inc.	\$0	\$0	\$679,133	\$679,133
Datagrove, Inc.	\$0	\$0	\$4,562	\$83
David Michael & Co., Inc.	\$0	\$0	\$6,815	\$4,218
DBI Holding, LLC	\$0	\$0	\$8,472	\$0
DecisionPro, Inc.	\$0	\$0	\$2,951	\$2,951
Decora Industries, Inc. (t/a Data Display Systems)	\$0	\$0	\$13,593	\$1,602
Deeplocal, Inc.	\$0	\$0	\$8,556	\$0
Delta Health Technologies, LLC	\$0	\$0	\$66,957	\$6
Devine Brothers, Inc.	\$0	\$0	\$4,094	\$4,094
Diamondback Automative Accessories	\$0	\$0	\$30,532	\$27,703
Directworks, Inc.	\$0	\$0	\$51,835	\$0
Diversified Machine, Inc.	\$0	\$0	\$1,549	\$0
DME Alliance, Inc.	\$0	\$0	\$1,880	\$1,880
DmgCtrl	\$0	\$0	\$7,652	\$7,652
Dobil Laboratories, Inc.	\$0	\$0	\$32,230	\$22,386
Dontech, Inc.	\$0	\$0	\$41,403	\$5,491
Dossier Systems, Inc.	\$0	\$0	\$13,787	\$177
Drakontas, LLC	\$0	\$0	\$7,694	\$7,694
Dynalene, Inc.	\$0	\$0	\$8,993	\$8,993
Dynamic Materials Corporation	\$0	\$0	\$674	\$674
Dynamis Pharmaceuticals, Inc.	\$0	\$0	\$49,017	\$49,017
Eagle Spinco, Inc.	\$0	\$0	\$3,265	\$3,265
EAM-Mosca Corp.	\$0	\$0	\$3,012	\$3,012
East Coast Erosion Blankets, LLC (d/b/a East Coast Erosion Control)	\$0	\$0	\$4,997	\$0
Eastern Manufacturing, LLC	\$0	\$0	\$21,711	\$3,600
Eaton Corporation	\$0	\$0	\$47,157	\$47,157
Education Management Solutions, Inc.	\$0	\$0	\$75,158	\$75,158

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
EF Precision, Inc.	\$0	\$0	\$122	\$122
Eitel Presses, Inc.	\$0	\$0	\$13,976	\$13,976
Electronics for Imaging, Inc.	\$0	\$0	\$31,840	\$10,467
EMD Serono, Inc.	\$0	\$0	\$380	\$0
Encentiv Energy, LLC	\$0	\$0	\$7,409	\$7,409
Endo Pharmaceuticals, Inc.	\$0	\$0	\$1,170,852	\$0
Ensinger, Inc.	\$0	\$0	\$13,974	\$0
Entech Engineering, Inc.	\$0	\$0	\$65,169	\$0
Enterprise Cloudwork Computing (f/k/a Adminovate, Inc.)	\$0	\$0	\$257,846	\$257,846
Environmental Monitoring Technical	\$0	\$0	\$1,644	\$1,644
Eriez Manufacturing Co.	\$0	\$0	\$33,798	\$14,873
Ernst Biomass, LLC	\$0	\$0	\$27,737	\$19,116
Ernst Conservation Seeds, Inc.	\$0	\$0	\$10,768	\$5,873
Essent Corporation	\$0	\$0	\$32,264	\$0
EUS Labs, Inc.	\$0	\$0	\$7,453	\$7,453
Euthanex Corp.	\$0	\$0	\$12,854	\$12,854
Evolution Products, LLC	\$0	\$0	\$18,742	\$18,742
EZ Facility, Inc.	\$0	\$0	\$1,486	\$13
EzeFlow USA, Inc.	\$0	\$0	\$23,669	\$117
Fabri-Kal Corporation	\$0	\$0	\$6,656	\$1,356
FedEx Corporate Services, Inc.	\$0	\$0	\$109,259	\$109,259
FirstEnergy Corp.	\$0	\$0	\$105,075	\$0
FITBIT, Inc.	\$0	\$0	\$6,962	\$6,962
Flight Systems Automotive Group, LLC	\$0	\$0	\$14,131	\$215
FMC Technologies, Inc.	\$0	\$0	\$99,007	\$0
Follett Corporation	\$0	\$0	\$88,907	\$88,907
Frewmill Die Crafts, Inc.	\$0	\$0	\$6,285	\$2,099
Frog Switch & Manufacturing Company, Inc.	\$0	\$0	\$4,669	\$0
Frontier Research Ltd.	\$0	\$0	\$5,999	\$5,999
Frontline Fabrics, Inc.	\$0	\$0	\$13,471	\$1,318
Frontline Technologies, Inc.	\$0	\$0	\$109,674	\$61,357
FS-Elliott Co., LLC	\$0	\$0	\$31,500	\$0
FusionMarx, Inc.	\$0	\$0	\$11,342	\$11,342
FutureWei Technologies, Inc.	\$0	\$0	\$10,243	\$2
GAI-Tronics Corporation	\$0	\$0	\$19,332	\$19,332
GanaLila, LLC	\$0	\$0	\$201	\$163
Gardners Candies, Inc.	\$0	\$0	\$2,724	\$2,724
GE Betz, Inc.	\$0	\$0	\$220,346	\$6,513
GE Energy Power Conversion USA, Inc. (f/k/a Converteam, Inc.)	\$0	\$0	\$287,693	\$0
Gemini Plastics, Inc.	\$0	\$0	\$118,191	\$0
Genco Distribution System, Inc.	\$0	\$0	\$39,992	\$0
General Electric Company	\$0	\$0	\$3,036,839	\$0
Genossis, LLC	\$0	\$0	\$13,065	\$13,065
Georgia Pacific Consumer Products, LP	\$0	\$0	\$3,024	\$0
Georgia Pacific Corrugated II, LLC	\$0	\$0	\$2,063	\$0
GES Automation Technology, Inc.	\$0	\$0	\$146,185	\$100,630
GlaxoSmithKline, LLC	\$0	\$0	\$5,622,714	\$1,504,141
Glen Carbide, Inc.	\$0	\$0	\$8,220	\$8,220
Go Carlson, Inc.	\$0	\$0	\$68,407	\$0
Go Green IT, Inc.	\$0	\$0	\$1,770	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Golden Brothers, Inc. (t/a Golden Technologies)	\$0	\$0	\$56,409	\$24,964
GrafTech International, Ltd.	\$0	\$0	\$111,779	\$0
Graham Packaging Holdings Company	\$0	\$0	\$5,355	\$5,355
Grantek Systems Integration, Inc.	\$0	\$0	\$1,824	\$0
Gravic, Inc.	\$0	\$0	\$47,493	\$122
Gray Skies Blue, LLC	\$0	\$0	\$12,428	\$12,428
Graymont Dolime (OH), Inc.	\$0	\$0	\$678	\$678
Greene, Tweed & Co., Inc.	\$0	\$0	\$539,915	\$0
Griffith, Inc. (t/a Alpha Systems)	\$0	\$0	\$12,325	\$12,325
Grove US, LLC	\$0	\$0	\$146,669	\$7,071
Hamilton Precision Metals, Inc.	\$0	\$0	\$7,010	\$1
Havaco Technologies Incorporated	\$0	\$0	\$40,342	\$0
Health Sciences Construction Group, Ltd.	\$0	\$0	\$19,362	\$17,358
Heinz Management, LLC	\$0	\$0	\$90,467	\$62,787
Herkules USA Corporation	\$0	\$0	\$5,827	\$4,778
Heyl and Patterson, Inc.	\$0	\$0	\$12,515	\$109
Highwood USA, LLC	\$0	\$0	\$2,789	\$51
Hodge Tool Company, Inc.	\$0	\$0	\$5,883	\$0
Holtec Heat Transfer Division (f/k/a Holtec Power Plant Components Division)	\$0	\$0	\$52,407	\$0
Honeywell Electronic Materials, Inc.	\$0	\$0	\$43	\$43
Hunsicker Emissions Services, LLC	\$0	\$0	\$5,492	\$0
Hybrid Integration, LLC	\$0	\$0	\$73,342	\$73,167
Hydac Technology Corp.	\$0	\$0	\$2,099	\$2,099
Hydro-Pac, Inc.	\$0	\$0	\$494	\$494
Immunex Corporation	\$0	\$0	\$74,054	\$16,467
Imperial Carbide, Inc.	\$0	\$0	\$22,246	\$0
Implementation Consulting Service	\$0	\$0	\$346	\$346
Indeck Keystone Energy, LLC	\$0	\$0	\$7,102	\$1,707
Industrial Vision Systems, Inc.	\$0	\$0	\$2,571	\$52
Infrascan, Inc.	\$0	\$0	\$7,574	\$0
Ingmar Medical, Ltd.	\$0	\$0	\$8,774	\$8,774
Inno-Pak, LLC	\$0	\$0	\$3,207	\$243
Innov Form Therapeutics, LLC	\$0	\$0	\$1,411	\$0
Innovative Solutions and Support, Inc.	\$0	\$0	\$412,185	\$0
Innovesca, LLC	\$0	\$0	\$1,842	\$0
Insinger Machine Company	\$0	\$0	\$2,222	\$2,222
Instamour, Inc.	\$0	\$0	\$2,676	\$2,676
Integrated Fabrication & Machine, Inc.	\$0	\$0	\$11,134	\$34
Integration Technology Systems, Inc.	\$0	\$0	\$6,192	\$5,214
Intel Mobile Communications North America, Inc.	\$0	\$0	\$20,445	\$20,445
Intel Americas, Inc.	\$0	\$0	\$86,811	\$86,811
Interpace Diagnostics Corporation (f/k/a Red Path, Inc.)	\$0	\$0	\$32,287	\$690
Interstate Building Materials, Inc.	\$0	\$0	\$623	\$34
Invisible Sentinel, Inc.	\$0	\$0	\$54,904	\$54,904
J Baur Machining, Inc.	\$0	\$0	\$5,025	\$5,025
J.B. Poindexter & Co., Inc.	\$0	\$0	\$45,571	\$0
JCR Sales Mfg., LLC	\$0	\$0	\$2,889	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Jennison Corporation	\$0	\$0	\$46,777	\$46,777
JetAir, Inc.	\$0	\$0	\$27,116	\$0
Jetbolt Games, Inc.	\$0	\$0	\$155	\$0
JIT Prototyping, LLC	\$0	\$0	\$8,615	\$1,239
JK Tool, Inc. (f/k/a JK Tool & Die, Inc.)	\$0	\$0	\$17,871	\$29
JMG Systems, LLC	\$0	\$0	\$2,191	\$0
Johnstown Tube Laser, LLC (d/b/a Environmental Tank & Container)	\$0	\$0	\$21,282	\$0
Jonas Software USA, LLC	\$0	\$0	\$3,747	\$935
Jordan Acquisition Group, LLC (dba American Auto Matrix)	\$0	\$0	\$8,859	\$6,471
Joseph Barbato Associates, LLC	\$0	\$0	\$11,498	\$11,498
Kaolin Mushroom Farms, Inc.	\$0	\$0	\$17,348	\$17,348
KCF Technologies, Inc.	\$0	\$0	\$66,346	\$66,346
Kenco Corporation	\$0	\$0	\$7,423	\$138
Keystone Manufacturing, Inc.	\$0	\$0	\$1,740	\$1,740
Kiewit Engineering & Design, Co.	\$0	\$0	\$547	\$0
Kiewit Power Constructors Co.	\$0	\$0	\$24,901	\$24,901
K'NEX Brands LP	\$0	\$0	\$198,982	\$0
Koppers, Inc.	\$0	\$0	\$36,435	\$20,403
Koryak Consulting, Inc.	\$0	\$0	\$12,413	\$12,413
Kroff Chemical Company	\$0	\$0	\$25,706	\$25,706
Kwantera Incorporated	\$0	\$0	\$9,546	\$323
LaBarge Electronics, Inc.	\$0	\$0	\$10,300	\$0
Lake Tool, Inc.	\$0	\$0	\$39,601	\$12,052
LCR Electronics, Inc.	\$0	\$0	\$3,649	\$3,649
LCR Embedded Systems, Inc.	\$0	\$0	\$5,142	\$0
Learning Sciences International, LLC	\$0	\$0	\$20,455	\$8,975
Lee Industries, Inc.	\$0	\$0	\$9,930	\$0
Leech Industries, Inc.	\$0	\$0	\$476	\$449
Lehigh Valley Technologies, Inc.	\$0	\$0	\$192,574	\$192,574
Levolta Pharmaceuticals, Inc.	\$0	\$0	\$5,257	\$0
Liberty Electronics, Inc.	\$0	\$0	\$13,742	\$13,742
LifeSensors, Inc.	\$0	\$0	\$27,362	\$11
Lighthouse Electric Company, Inc.	\$0	\$0	\$6,163	\$0
Lignolink, Inc.	\$0	\$0	\$4,824	\$0
Lindy Paving, Inc.	\$0	\$0	\$15,786	\$1,831
Linear Acoustic, Inc.	\$0	\$0	\$7,158	\$0
Lockheed Martin Corporation	\$0	\$0	\$3,542,384	\$3,542,384
Logimax, Inc.	\$0	\$0	\$3,993	\$3,993
Lokadot, LLC	\$0	\$0	\$6,056	\$6,056
Lozier Corporation	\$0	\$0	\$847	\$319
LRT Sensors, LLC	\$0	\$0	\$889	\$889
Ludo Mechanica, LLC	\$0	\$0	\$1,243	\$0
LWI & Associates, Inc.	\$0	\$0	\$2,553	\$0
Macron Dynamics, LLC	\$0	\$0	\$7,214	\$38
Magnatech International, Inc.	\$0	\$0	\$5,093	\$5,093
Manley Holdings, Inc.	\$0	\$0	\$215,210	\$193,418
Map Decisions, LLC	\$0	\$0	\$4,030	\$4,019
Mapquest PA, Inc.	\$0	\$0	\$23,163	\$0
Markovitz Enterprises, Inc.	\$0	\$0	\$5,173	\$5,173
Mars Fishcare NA, Inc.	\$0	\$0	\$36,502	\$0

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Martin Technology, Inc.	\$0	\$0	\$17,618	\$6,170
Maxim Integrated Products, Inc.	\$0	\$0	\$10,399	\$10,399
Maya Design, Inc.	\$0	\$0	\$14,699	\$232
Metalor Electrotechnics USA Corp.	\$0	\$0	\$12,000	\$569
Michael & Associates, Inc.	\$0	\$0	\$26,024	\$26,024
Micromechatronics, Inc.	\$0	\$0	\$68,228	\$68,228
Milnes Engineering, Inc.	\$0	\$0	\$35,910	\$35,910
Mine Safety Appliances Company	\$0	\$0	\$79,944	\$0
Minnotte Contracting Corporation	\$0	\$0	\$4,666	\$4,666
MoJo Active, Inc.	\$0	\$0	\$18,815	\$16,445
Mosebach Manufacturing Company	\$0	\$0	\$14,777	\$0
Mouse Trap Design, LLC	\$0	\$0	\$5,810	\$31
MPD Holdings, LLC	\$0	\$0	\$50,400	\$50,400
MyNetwork, LLC	\$0	\$0	\$23,657	\$23,657
NABCO, Inc.	\$0	\$0	\$11,201	\$0
Nalco Company, LLC	\$0	\$0	\$58,932	\$58,932
National Medical Services, Inc.	\$0	\$0	\$107,216	\$47,442
Navarro & Wright Consulting Engineers, Inc.	\$0	\$0	\$27,564	\$750
Nazareth Industrial Corporation	\$0	\$0	\$3,599	\$3,153
NE Foods, Inc.	\$0	\$0	\$3,761	\$333
NESTEC, Inc.	\$0	\$0	\$63,085	\$63,085
New Standard Corporation	\$0	\$0	\$6,489	\$6,489
New Way Machine Components, Inc.	\$0	\$0	\$119,501	\$32,474
NewCare Solutions, LLC	\$0	\$0	\$31,907	\$29,749
Nitromega Corporation	\$0	\$0	\$756	\$0
Noble MD, Inc.	\$0	\$0	\$1,947	\$1,947
Norquay Technology Incorporated	\$0	\$0	\$13,519	\$116
Novira Therapeutics, Inc.	\$0	\$0	\$73,815	\$0
Novo Nordisk, Inc.	\$0	\$0	\$178,257	\$178,257
NRG Controls, Inc.	\$0	\$0	\$50,323	\$39,271
NTVI Fed, LLC	\$0	\$0	\$58,569	\$1,748
NuTec Tooling Systems, Inc.	\$0	\$0	\$219,666	\$18,882
Odessa Technologies, Inc.	\$0	\$0	\$8,531	\$0
Old GBI Limited (f/k/a GasBreakers, Inc.)	\$0	\$0	\$2,253	\$2,253
Olympic Steel, Inc.	\$0	\$0	\$25,886	\$2,783
Omega Design Corporation	\$0	\$0	\$2,229	\$0
O'Neal Steel, Inc.	\$0	\$0	\$15,315	\$20
OptiXtal, Inc.	\$0	\$0	\$11,162	\$0
Optofluidics, Inc.	\$0	\$0	\$63,600	\$63,600
Packworld USA, Ltd.	\$0	\$0	\$3,801	\$3,801
Parametric Dining, LLC	\$0	\$0	\$19,858	\$0
Parker White Metal Company	\$0	\$0	\$1,917	\$170
Pellegrino Food Products Co., Inc.	\$0	\$0	\$17,923	\$17,923
Pelletron Corporation	\$0	\$0	\$13,982	\$13,982
Penn Manufacturing Industries, Inc.	\$0	\$0	\$201,103	\$21,141
Pennsy Corporation	\$0	\$0	\$40,558	\$40,558
PennTecQ, Inc.	\$0	\$0	\$50,666	\$845
PeopleLinx, Inc.	\$0	\$0	\$19,920	\$19,920
Phonetics, Inc. (d/b/a Sensaphone)	\$0	\$0	\$83,684	\$1,161
PhotoMedex, Inc.	\$0	\$0	\$7,916	\$3,109
Piezo Energy, Inc.	\$0	\$0	\$28,239	\$28,239

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Pilot Air Freight Corp.	\$0	\$0	\$28,986	\$28,986
Pittsburgh Logistics System, Inc.	\$0	\$0	\$6,113	\$0
Pittsburgh Plastics Mfg, Inc.	\$0	\$0	\$5,205	\$5,205
Pivitec, LLC	\$0	\$0	\$7,162	\$7,162
PJ Dick Incorporated	\$0	\$0	\$41,714	\$41,714
Polymer Molding, Inc.	\$0	\$0	\$968	\$968
Polymer Products Company, Inc.	\$0	\$0	\$724	\$0
Polytek Development Corp. (c/o MPE Case Labs, Inc.)	\$0	\$0	\$18,648	\$8,579
PoolPak International, LLC	\$0	\$0	\$28,542	\$25,688
PoweredAnalytics, Inc.	\$0	\$0	\$7,239	\$7,239
Premier Automation Holdings, Inc.	\$0	\$0	\$16,232	\$16,232
Prescient Weather, Ltd.	\$0	\$0	\$8,102	\$5,402
Progenra, Inc.	\$0	\$0	\$129,565	\$129,565
ProSoft Technologies, Inc.	\$0	\$0	\$32,964	\$12,446
PSG Controls, Inc.	\$0	\$0	\$6,371	\$1,272
Puratec, LLC	\$0	\$0	\$16,956	\$16,956
Pyrotecnico Fireworks, Inc.	\$0	\$0	\$24,224	\$0
QBC Diagnostics, LLC	\$0	\$0	\$35,480	\$35
QSI Management, LLC	\$0	\$0	\$57,453	\$0
QuadraMed Affinity Corporation	\$0	\$0	\$3,328	\$0
Quantum Vortex, Inc.	\$0	\$0	\$70,536	\$70,536
Quintech Electronics Communications, Inc.	\$0	\$0	\$34,886	\$2,745
Ranbar Electrical Materials, Inc.	\$0	\$0	\$5,636	\$5,636
Reaxis, Inc.	\$0	\$0	\$10,893	\$1,112
Rebco, Inc.	\$0	\$0	\$14,248	\$9,332
Receivers Unlimited, LLC	\$0	\$0	\$3,350	\$0
Red Lion Controls, Inc.	\$0	\$0	\$1,644	\$1,644
Relay Network, LLC	\$0	\$0	\$33,644	\$284
Renick Brothers Construction Company	\$0	\$0	\$68,201	\$68,201
Resco Products, Inc.	\$0	\$0	\$6,119	\$2,365
Rexmet Corporation	\$0	\$0	\$1,188	\$1,188
RichardsApex, Inc.	\$0	\$0	\$1,238	\$1,238
Right Start Factory, LLC	\$0	\$0	\$12,441	\$12,441
RightCare Solutions, Inc.	\$0	\$0	\$46,027	\$228
RKI Apps, Inc.	\$0	\$0	\$7,056	\$0
Robert Bosch, LLC	\$0	\$0	\$10,114	\$10,114
Robinson Fans Holdings, Inc.	\$0	\$0	\$14,657	\$0
Royal Window & Door Profiles Plant 13, Inc.	\$0	\$0	\$2,294	\$0
Rubitection, Inc.	\$0	\$0	\$11,526	\$11,526
rue21, Inc.	\$0	\$0	\$176,834	\$101,406
Runabout Media Group, LLC	\$0	\$0	\$6,562	\$6,562
S&S X-Ray Products, Inc.	\$0	\$0	\$1,761	\$1,168
SABIC Innovative Plastics US, LLC	\$0	\$0	\$95,847	\$15,192
Salar, Inc.	\$0	\$0	\$1,248	\$0
Salsgiver, Inc.	\$0	\$0	\$1,203	\$1,203
Sanofi US Services, Inc.	\$0	\$0	\$314,989	\$314,989
Sapa Extrusions, Inc.	\$0	\$0	\$124,834	\$876
Sargent Electric Company	\$0	\$0	\$52,242	\$52,242
Saucon Technologies	\$0	\$0	\$74,109	\$16,522
Scalise Real Estate, Inc.	\$0	\$0	\$18,322	\$10,284
Schindler Elevator Corporation	\$0	\$0	\$20,945	\$1,931

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Schramm, Inc.	\$0	\$0	\$4,685	\$1,172
Schulmerich Bell, LLC	\$0	\$0	\$9,078	\$9,078
SDLC Management, Inc.	\$0	\$0	\$2,445	\$0
Seco Warwick Corporation	\$0	\$0	\$11,550	\$0
Seegrid Holding Corporation	\$0	\$0	\$48,791	\$0
Seneca Resources Corporation	\$0	\$0	\$2,163,998	\$0
Shanks Extracts, Inc.	\$0	\$0	\$6,033	\$6,033
Shaw Industries, Inc.	\$0	\$0	\$5,503	\$5,066
Shifa Biomedical Corporation	\$0	\$0	\$65,049	\$65,049
Shire US Holdings, Inc.	\$0	\$0	\$914,646	\$0
ShowClix, Inc.	\$0	\$0	\$62,597	\$62,597
Siemens Medical Solutions USA, Inc.	\$0	\$0	\$304,466	\$304,466
Siemens PLM Software II US, Inc.	\$0	\$0	\$49,826	\$0
Skaffl, LLC	\$0	\$0	\$4,821	\$0
SKF USA, Inc.	\$0	\$0	\$143,465	\$143,465
Solar Innovations, Inc.	\$0	\$0	\$19,011	\$4,600
Southco, Inc.	\$0	\$0	\$21,636	\$948
Special Pathogens Laboratory, LLC	\$0	\$0	\$77,865	\$0
Standard Precision Manufacturing Incorporated	\$0	\$0	\$18,906	\$10,775
Standing Stone Consulting, Inc.	\$0	\$0	\$12,141	\$12,141
Stantec Consulting Services, Inc.	\$0	\$0	\$55,115	\$55,115
Starlite Diversified, Inc.	\$0	\$0	\$57,102	\$57,102
State of the Art, Inc.	\$0	\$0	\$776	\$776
Strategic Development Solutions, LLC	\$0	\$0	\$58,669	\$58,669
Sungard Data Systems, Inc.	\$0	\$0	\$214,073	\$9,004
SunStream Earth, LLC	\$0	\$0	\$1,037	\$0
Supelco, Inc.	\$0	\$0	\$17,786	\$1,238
SupplyOne, Inc.	\$0	\$0	\$5,180	\$0
Supreme Mid-Atlantic Corp.	\$0	\$0	\$2,900	\$822
Sustrana, LLC (f/k/a Resonate, LLC)	\$0	\$0	\$3,894	\$0
Sweet Street Desserts, Inc.	\$0	\$0	\$86,567	\$0
T&M Associates	\$0	\$0	\$16,199	\$16,199
Talbar, Inc.	\$0	\$0	\$7,058	\$2,726
Talencea Corporation	\$0	\$0	\$16,376	\$7,460
TEK Construction Services, LLC	\$0	\$0	\$37,129	\$37,129
Tekgard, Inc.	\$0	\$0	\$2,140	\$1,412
Terry Miles Bald Eagle Precision	\$0	\$0	\$3,616	\$162
Teva Branded Pharmaceutical Products R&D, Inc.	\$0	\$0	\$6,118,950	\$6,118,950
Texas Instruments Incorporated	\$0	\$0	\$224,019	\$224,019
The APAK Group	\$0	\$0	\$10,558	\$10,558
The Beistle Company	\$0	\$0	\$1,046	\$1,046
The Drucker Company, Inc.	\$0	\$0	\$20,938	\$7,397
The Efficiency Network, Inc.	\$0	\$0	\$10,712	\$10,712
The Lane Construction Corporation	\$0	\$0	\$6,209	\$2,364
The Milnes Co., Inc.	\$0	\$0	\$5,205	\$5,205
The Stork Ib2C, Inc.	\$0	\$0	\$44,993	\$26,792
The Valspar Corporation	\$0	\$0	\$56,073	\$26,509
Thermal Solutions Products, LLC	\$0	\$0	\$15,001	\$10,473
Therm-Omega-Tech, Inc.	\$0	\$0	\$17,718	\$0
ThingWorx, Inc.	\$0	\$0	\$198,442	\$198,442

<i>Taxpayer Name</i>	<i>2016 Credit Awarded</i>	<i>2016 Credit Utilized¹</i>	<i>2015 & 2014 Credit Awarded</i>	<i>2015 & 2014 Credit Utilized¹</i>
Third Eye Diagnostics, Inc.	\$0	\$0	\$18,910	\$18,910
THREAD, LLC	\$0	\$0	\$8,820	\$8,820
Tipton Medical & Diagnostic Center	\$0	\$0	\$48,029	\$48,029
Tiversa Holding Corp.	\$0	\$0	\$15,552	\$12,006
TIW Technology, Inc.	\$0	\$0	\$13,957	\$0
TMG Health, Inc.	\$0	\$0	\$54,239	\$3,049
Toll Bros., Inc.	\$0	\$0	\$125,595	\$4,729
TowerStar Pets, LLC	\$0	\$0	\$16,334	\$0
Trapeze Software Group, Inc.	\$0	\$0	\$5,921	\$0
Treehouse Foods, Inc.	\$0	\$0	\$13,627	\$0
Trice Medical, Inc.	\$0	\$0	\$71,327	\$505
Trifecta Technologies, Inc.	\$0	\$0	\$261,906	\$3,549
Triumph Controls, LLC	\$0	\$0	\$49,603	\$169
Turning Edge Solutions, LLC	\$0	\$0	\$18,598	\$18,598
Tyco Electronics Corporation	\$0	\$0	\$250,486	\$115,853
Union Carbide Corporation	\$0	\$0	\$40,605	\$14,974
United Bank Card, Inc. (d/b/a Harbortouch)	\$0	\$0	\$8,834	\$2,574
Universal Stainless and Alloy Products, Inc.	\$0	\$0	\$10,187	\$1,245
USA Technolgies, Inc.	\$0	\$0	\$24,685	\$0
UTZ Quality Foods, Inc.	\$0	\$0	\$30,560	\$0
Valley Instrument Co., Inc.	\$0	\$0	\$1,065	\$0
Vamco International, Inc.	\$0	\$0	\$17,328	\$16,986
Velano Vascular, Inc. (f/k/a Creative Vascular, Inc.)	\$0	\$0	\$34,576	\$34,576
VenatoRx Pharmaceuticals, Inc.	\$0	\$0	\$159,428	\$0
Vertex, Inc.	\$0	\$0	\$22,238	\$10,155
Vertical Screen, Inc.	\$0	\$0	\$26,354	\$34
Vestige Enterprises, Inc. (f/k/a PressTech Enterprises, Inc.)	\$0	\$0	\$3,708	\$1,935
Viddler, Inc.	\$0	\$0	\$11,194	\$11,194
Videomining Corporation	\$0	\$0	\$322	\$322
Vista Auctions, LLC	\$0	\$0	\$152	\$152
Vulcan Spring & Mfg., Co.	\$0	\$0	\$10,237	\$4,858
Wagman, Inc.	\$0	\$0	\$25,959	\$1,806
Walking Thumbs, LLC	\$0	\$0	\$211,104	\$201,155
Wampole Miller, Inc.	\$0	\$0	\$65,919	\$11,230
Wampum Hardware Co.	\$0	\$0	\$10,102	\$10,102
Warfel Construction Company	\$0	\$0	\$80,928	\$80,928
Warners Innovations Solutions	\$0	\$0	\$47,544	\$47,544
Wavefront Research, Inc.	\$0	\$0	\$96,358	\$96,358
WebberSmith Associates, Inc.	\$0	\$0	\$45,041	\$38,489
WebKite, Inc.	\$0	\$0	\$5,277	\$0
WEI Holding, Inc.	\$0	\$0	\$20,586	\$77
Weir Hazleton, Inc.	\$0	\$0	\$11,747	\$6,888
Weld Tooling Corporation	\$0	\$0	\$5,999	\$5,999
Wheelhouse Analytics, LLC	\$0	\$0	\$220,451	\$220,451
Whitewater International, LLC	\$0	\$0	\$12,506	\$12,506
Windtree Therapeutics, Inc. (f/k/a Discovery Laboratories, Inc.)	\$0	\$0	\$930,165	\$925,483
Worldwide Refractories, Inc.	\$0	\$0	\$2,842	\$14
YCC Holdings, Inc.	\$0	\$0	\$3,802	\$0
Youbill, Inc.	\$0	\$0	\$33,113	\$47

Taxpayer Name	2016 Credit Awarded	2016 Credit Utilized¹	2015 & 2014 Credit Awarded	2015 & 2014 Credit Utilized¹
Z Band Video, Inc.	\$0	\$0	\$5,490	\$0
Z-Axis Connector Company	\$0	\$0	\$18,938	\$6,088
Z-Band, Inc.	\$0	\$0	\$6,168	\$95
TOTAL	\$55,000,000	\$0	\$110,000,000	\$57,774,161

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. Pass through credits and unused credits that were sold or assigned are also included as utilized.