

2016 Annual Report



**Division of
Science, Technology
& Innovation**

A Division of Empire State Development

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Published: January 25, 2017

INTRODUCTION

Empire State Development's Division of Science, Technology and Innovation (NYSTAR) advances technology innovation and commercialization in New York State.¹

NYSTAR offers programs that assist companies from start-up through maturity, leveraging the state's unparalleled investment in world-class technology assets and expertise. It provides roughly \$55 million annually in funding to support over 70 centers that provide direct assistance to New York State companies—a network of vital assets for enabling technology- and manufacturing-led growth and job creation. The network is well integrated with Governor Cuomo's ten Regional Economic Development Councils, with many NYSTAR partners serving as REDC members or advisors on matters of innovation, entrepreneurship, and technology-led development.

NYSTAR and its partners are proud to contribute to New York's leadership in the global innovation economy.

Report Organization

Each NYSTAR program is presented in the subsequent sections—Manufacturing Extension Partnership, Centers for Advanced Technology, Centers of Excellence, Innovation Hot Spots & Certified Business Incubators, High Performance Computing, Science + Technology Law Center, Digital Gaming Hubs, Matching Grants Leverage Program, and Faculty Development & Technology Transfer. These sections provide a program overview and half-page cards presenting key information about and recent economic impacts of centers funded through those programs.

Appendix 1 provides full five-year economic impact data for the Manufacturing Extension Partnership, Centers for Advanced Technology, and Centers of Excellence.

Appendix 2 provides additional qualitative reporting information concerning outreach, relationships with the educational ecosystem, and the impact of NYSTAR programs on the development of new products and processes.

Appendix 3 contains information on the methodology for economic impact calculations and reporting.

Summary Statistics

New York State is an innovation powerhouse.

- In 2016, New York was home to 316 degree-granting institutions of higher education (source: IPEDS). It was home to nine “R1” institutions—doctoral universities with the highest level of research activity—the second-most in the country (source: Carnegie Classification of Institutions of Higher Education).

¹ Most of NYSTAR program authority is found in statute including Article 10a of the Public Authority Law, Article 10b of the Executive Law, Section 16-v of the UDC Act, and Article 19 of the Economic Development Law.

- In 2013, New York logged \$5.3 billion in academic R&D expenditures (source: NSF National Center for Science & Engineering Statistics).
- In 2013, there was \$4.6 billion in federal research and development investment to New York-based federal agencies and laboratories (source: federallabs.org).
- In 2014, New York ranked third in the country for number of patents issued to state residents (source: NSF National Center for Science & Engineering Statistics).

NYSTAR programs represent substantial and critical state investment in New York's innovation ecosystem. Highlights from the economic impacts presented in this report include:

- Over the past five years, the New York Manufacturing Extension Partnership helped create or retain 20,677 jobs and generated about \$3.4 billion in economic impact.
- Over the past five years, the Centers for Advanced Technology helped create or retain 3,810 jobs and generated about \$2.6 billion in economic impact.
- Over the past five years, the Centers of Excellence helped create or retain 18,649 jobs and generated about \$2.3 billion in economic impact.
- Over the past two years, the High Performance Computing Consortium helped create or retain 52 jobs and generated about \$20.5 million in economic impact.
- In the first full year of reporting, the first tranche of designated Innovation Hot Spots and NYS Certified Business Incubators helped create or retain 768 jobs and generated about \$177.3 million in economic impact.
- The New York State Science + Technology Law Center and research efforts supported through the Matching Grants Leverage Program were important drivers of innovation and commercialization activity across the state.

MANUFACTURING EXTENSION PARTNERSHIP (NY MEP)

Program Overview and Purpose

The New York Manufacturing Extension Partnership (NY MEP) is a network of organizations that provide growth and innovation services to small and mid-sized manufacturers in every corner of the state to help them create and retain jobs, increase profits, and save time and money. NY MEP is part of the National Institute of Standards and Technology's (NIST) Hollings Manufacturing Extension Partnership and is supported through a combination of federal and state funding.²

NY MEP provides a variety of services including:

- Innovation strategies;
- Process improvements;
- Quality control;
- Manufacturing scale-up;
- Sustainable manufacturing;
- Supply chain assistance;
- Technology acceleration;
- New market strategies;
- Product development and prototyping;
- Entrepreneurial and start-up assistance, including financing and grant information; and
- Other services tailored to regional priority industry clusters.

Empire State Development was re-designated by NIST as the New York MEP Center effective January 1, 2016 after a federal competition. ESD also held a competition in 2015 to select eleven sub-recipient organizations—one in each economic development region and one “statewide” center—to implement the program. Two previously designated sub-recipients were not awarded re-designation: Mohawk Valley Applied Technology Corporation and Long Island Forum for Technology.

Center Summaries for 2015

Two sub-recipients—Mohawk Valley Community College and Stony Brook University—are new to NY MEP as of January 2016 and therefore have no impacts reported for 2015. The appendices contain five years of impact data for the sub-recipients that held contracts through 2015.

² The New York MEP program is referred to in Article 10a of Public Authorities Law under the program names “Industrial Technology Extension Service” and “Technology Development Organization.” Funding is provided under Department of Economic Development Aid to Localities.

Center Name: Hudson Valley Technology Development Center
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Mid-Hudson
MEP-dedicated employees: 15
State funding: \$279,000
Federal funding: \$436,000
Matching funding: \$1,016,599

ECONOMIC IMPACTS



2015 CALENDAR YEAR



8

JOBS
CREATED

77

JOBS
RETAINED



33

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$43,429,000



\$35,150,000

INCREASED/
RETAINED SALES

\$1,080,000

COST
SAVINGS

\$7,199,000

NEW
INVESTMENT

Center Name: Alliance for Manufacturing & Technology
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Southern Tier
MEP-dedicated employees: 6.5
State funding: \$293,000
Federal funding: \$457,000
Matching funding: \$492,464

ECONOMIC IMPACTS



2015 CALENDAR YEAR



138

JOBS
CREATED

1,077

JOBS
RETAINED



45

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$212,444,700



\$197,098,000

INCREASED/
RETAINED SALES

\$904,200

COST
SAVINGS

\$14,442,500

NEW
INVESTMENT

Center Name: Industrial & Technology Assistance Corporation
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: New York City
MEP-dedicated employees: 15
State funding: \$810,000
Federal funding: \$1,263,000
Matching funding: \$2,005,285

ECONOMIC IMPACTS



2015 CALENDAR YEAR



558

JOBS
CREATED

625

JOBS
RETAINED



101

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$178,639,500



\$62,900,000

INCREASED/
RETAINED SALES

\$26,851,000

COST
SAVINGS

\$88,888,500

NEW
INVESTMENT

Center Name: Insyte Consulting
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Western NY
MEP-dedicated employees: 13
State funding: \$399,000
Federal funding: \$622,000
Matching funding: \$951,622

ECONOMIC IMPACTS



2015 CALENDAR YEAR



209

JOBS
CREATED

956

JOBS
RETAINED



85

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$283,456,210



\$247,531,100

INCREASED/
RETAINED SALES

\$10,199,000

COST
SAVINGS

\$25,726,110

NEW
INVESTMENT

Center Name: High Tech Rochester
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Finger Lakes
MEP-dedicated employees: 3.86
State funding: \$345,000
Federal funding: \$538,000
Matching funding: \$1,604,388

ECONOMIC IMPACTS



2015 CALENDAR YEAR



55

JOBS
CREATED

271

JOBS
RETAINED



135

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$13,132,800



\$5,088,000

INCREASED/
RETAINED SALES

\$1,393,800

COST
SAVINGS

\$6,651,000

NEW
INVESTMENT

Center Name: Center for Economic Growth
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Capital Region
MEP-dedicated employees: 6.49
State funding: \$269,000
Federal funding: \$419,000
Matching funding: \$458,572

ECONOMIC IMPACTS



2015 CALENDAR YEAR



79

JOBS
CREATED

423

JOBS
RETAINED



32

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$32,999,192



\$9,689,000

INCREASED/
RETAINED SALES

\$16,756,562

COST
SAVINGS

\$6,553,630

NEW
INVESTMENT

Center Name: Central New York TDO
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Central NY
MEP-dedicated employees: 7
State funding: \$248,000
Federal funding: \$385,000
Matching funding: \$659,083

ECONOMIC IMPACTS



2015 CALENDAR YEAR



35

JOBS
CREATED

115

JOBS
RETAINED



27

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$31,655,249



\$24,077,549

INCREASED/
RETAINED SALES

\$1,121,000

COST
SAVINGS

\$6,456,700

NEW
INVESTMENT

Center Name: CITEC, Inc.
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: North Country
MEP-dedicated employees: 8
State funding: \$209,000
Federal funding: \$326,000
Matching funding: \$546,007

ECONOMIC IMPACTS



2015 CALENDAR YEAR



29

JOBS
CREATED

222

JOBS
RETAINED



25

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$10,010,742



\$8,225,255

INCREASED/
RETAINED SALES

\$699,483

COST
SAVINGS

\$1,086,004

NEW
INVESTMENT

Center Name: Long Island Forum for Technology
ESD Program: New York Manufacturing Extension Partnership



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CENTER PROFILE

Region: Long Island
MEP-dedicated employees: 9
State funding: \$390,000
Federal funding: \$607,000
Matching funding: \$812,225

ECONOMIC IMPACTS



2015 CALENDAR YEAR



4

JOBS
CREATED

10

JOBS
RETAINED



27

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$19,660,000



\$2,500,000

INCREASED/
RETAINED SALES

\$2,600,000

COST
SAVINGS

\$14,560,000

NEW
INVESTMENT



CENTER PROFILE

Region: Mohawk Valley
MEP-dedicated employees: 5
State funding: \$184,000
Federal funding: \$286,000
Matching funding: \$458,469

ECONOMIC IMPACTS



2015 CALENDAR YEAR



51

JOBS
CREATED

344

JOBS
RETAINED



18

UNIQUE
COMPANIES
SERVED

NON-JOB IMPACT: \$24,073,805



\$13,000,000

INCREASED/
RETAINED SALES

\$2,795,000

COST
SAVINGS

\$8,278,805

NEW
INVESTMENT

CENTERS FOR ADVANCED TECHNOLOGY (CAT)

Program Overview and Purpose

NYSTAR funds fifteen Centers for Advanced Technology (CATs) to encourage greater collaboration between private industry and the universities of the state in the development and application of new technologies.³ The CAT program was created in 1983 and facilitates a continuing program of basic and applied research, development, and technology transfer in multiple technological areas, in collaboration with and through the support of private industry. It plays a critical role in spurring technology-based applied research and economic development in the state; promoting national and international research collaboration and innovation; and leveraging New York's research expertise and funding with investments from the federal government, foundations, businesses, venture capital firms, and other entities.

NYSTAR periodically identifies technology fields of strategic importance to New York's economic competitiveness and holds competitions to award ten-year CAT designations to New York universities, university-affiliated research institutes, or consortia of such institutions.

In 2015, two new CATs were designated:

- Additive Manufacturing and Multifunctional Printing (AMPrint) Center at Rochester Institute of Technology; and
- Center for Integrated Electric Energy Systems (CIEES) at Stony Brook University.

And the 2014-15 contract year was the last designation year for two CATs:

- CUNY Center for Advanced Technology in Photonics Applications; and
- Center for Advanced Information Management at Columbia University.

Center Summaries for the 2014-15 Contract Year⁴

Two CATs—the Center for Integrated Electric Energy Systems (CIEES) at Stony Brook University and the Additive Manufacturing and Multifunctional Printing (AMPrint) Center at Rochester Institute of Technology—are newly designated as of 2015-2016 and therefore have no impacts reported for 2014-2015. Appendix 1 contains five years of impact data for the CATs that held contracts through the 2014-2015 contract year.

³ The CAT program is cited in Article 10a of Public Authorities Law and 10b of Executive Law. Funding is provided under Department of Economic Development Aid to Localities.

⁴ Non-job impacts refer to increased company revenues, cost savings realized by a company, funds acquired by a company, and capital expenditures by a company; as a result of a project undertaken by the center. Appendix 3 contains further notes on methodology.

Two centers whose impacts are reported here are no longer designated CATs receiving funding from NYSTAR: The Center for Advanced Information Management at Columbia University and the CUNY Center for Advanced Technology in Photonics Applications.

Center Name: Center for Advanced Ceramic Technology (CACT) at Alfred University
ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Western NY
State funding: \$921,200
Matching funding: \$1,410,376

About: The CACT conducts applied research and development with industry, leveraging the expertise of Alfred's faculty in advanced technical ceramics and glass to generate economic impact at partner companies. The CACT leverages this expertise in a number of fields; including but not limited to ceramics and glass for application in energy, the environment, health care, defense, and much more. The CACT is highly flexible and works with companies of all sizes, from one person start-ups to multi-national corporations, on a variety of projects ranging from short-term analytical testing to multi-year sponsored research contracts.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



6	11
JOBS CREATED	JOBS RETAINED



	\$5,990,881
	NON-JOB IMPACT

Center Name: Center for Advanced Technology in Nanomaterials and Nanoelectronics (CATN2) at SUNY Polytechnic Institute
ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Capital Region
State funding: \$921,200
Matching funding: \$2,075,521

About: CATN2 has concentrated its efforts on nurturing a next-generation, nanotechnology-enabled open innovation ecosystem. CATN2 offers technology transitioning capabilities by leveraging the tools and infrastructure at SUNY Polytechnic Institute's NanoTech Complex. CATN2 has a recognized focus on utilizing advanced nanofabrication capabilities to enable the commercialization of innovative nanotechnologies; including but not limited to device derivatives, compound semiconductors, micro-electro-mechanical-systems, and roll-to-roll photovoltaics.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



92	50
JOBS CREATED	JOBS RETAINED



	\$109,612,104
	NON-JOB IMPACT

Center Name: Integrated Electronics Engineering Center (IEEC) at Binghamton University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Southern Tier

State funding: \$921,200

Matching funding: \$1,592,774

About: IEEC is dedicated to the advancement of electronic packaging technology and the electronics industry. Advances in electronics performance is limited principally by packaging technology, in that the market demands high functional power in increasingly smaller products. IEEC conducts leading edge research in a wide variety of packaging areas for the technological and economic benefit of New York companies.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



16

29

JOBS CREATED

JOBS
RETAINED



\$7,302,180

NON-JOB
IMPACT

Center Name: Center for Advanced Biomedical and Bioengineering Technology at the University at Buffalo

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Western NY

State funding: \$921,200

Matching funding: \$1,289,262

About: Located within the New York State Center of Excellence in Bioinformatics and Life Sciences on the university's Buffalo Niagara Medical Campus, the UB CAT provides essential funding and infrastructure to foster the growth of companies and the commercialization of new inventions across the life sciences spectrum. Companies working on a new or improved product line can use UB CAT for product development, optimization or design, testing, validation and quality control, or even clinical trials.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



166

128

JOBS CREATED

JOBS
RETAINED



\$143,841,323

NON-JOB
IMPACT

Center Name: CUNY Center for Advanced Technology
ESD Program: Centers for Advanced Technology



CENTER PROFILE

Region: New York City

State funding: \$921,200

Matching funding: \$2,293,384

About: The CUNY Center for Advanced Technology's research areas included energy, defense, medical and biomedical, optics and photonic devices, advance materials and processing, communication and metamaterials.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



26

28

JOBS CREATED

JOBS
RETAINED



\$16,041,104

NON-JOB
IMPACT

Center Name: Center for Advanced Materials Processing (CAMP) at Clarkson University
ESD Program: Centers for Advanced Technology



CENTER PROFILE

Region: North Country

State funding: \$921,200

Matching funding: \$1,040,268

About: CAMP's research is focused on colloids and surfaces; in particular, on the production, modification and conversion of solids for which small particles, colloidal media or surfaces play an important role in the processing or the properties of the final product. This research is applied to industrial needs; including but not limited to photocopying and imaging, microelectronics with applications in chemical-mechanical planarization, materials processing, catalyst production and use, pharmaceutical, cosmetic, and environmental control industries, among others.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



7

27

JOBS CREATED

JOBS
RETAINED



\$15,650,695

NON-JOB
IMPACT

Center Name: Center for Advanced Information Management at Columbia University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: New York City

State funding: \$921,200

Matching funding: \$1,404,494

About: The Center for Advanced Information Management at Columbia University helped companies achieve technical and economic success from their products and processes. Its mission was to provide targeted assistance and to utilize the university's intellectual strength and comprehensive infrastructure in order to offer flexible approaches to solving industry's problems.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

Center decertified in 2015 and impacts not made available.

Center Name: Center for Life Science Enterprise at Cornell University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Southern Tier

State funding: \$921,200

Matching funding: \$1,619,414

About: The Center for Life Science Enterprise pursues programs in research and development, education and training, and technology transfer that address the economic development needs of New York's biotechnology industry. Its partner companies represent diverse disciplines including; but not limited to chemistry, engineering, food science, genetics, microbiology, molecular biology, plant science, and veterinary medicine.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



4

2

JOBS CREATED

JOBS
RETAINED



\$117,000

NON-JOB
IMPACT

Center Name: Center for Advanced Technology in Telecommunications and Distributed Information Systems (CATT) at NYU Polytechnic School of Engineering
ESD Program: Centers for Advanced Technology



CENTER PROFILE

Region: New York City

State funding: \$921,200

Matching funding: \$1,895,181

About: CATT promotes technology transfer in this field by partnering with both providers and users of telecommunications and information systems and helping them turn the latest developments in these technologies into competitive and productive resources. CATT draws on the expertise of over 50 researchers, including leaders in the fields of electrical engineering and computer science. It provides an independent, objective source of knowledge and experience through a broad-based program of research, education, consulting, and business outreach.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



81	0
JOBS CREATED	JOBS RETAINED



\$50,670,000
 NON-JOB IMPACT

Center Name: Center for Automation Technologies and Systems (CATS) at Rensselaer Polytechnic Institute
ESD Program: Centers for Advanced Technology



CENTER PROFILE

Region: Capital Region

State funding: \$921,200

Matching funding: \$2,043,171

About: Rensselaer CATS provides a means for industry to utilize an extensive pool of knowledge and expertise in the science and technologies of automation. The CATS' technology focus is advanced manufacturing, centered on automation-autonomous algorithms, processes, systems and devices that improve efficiency, increase productivity, or provide new functionality. The CATS helps develop system-level, high-impact solutions for production challenges for companies spanning key industrial sectors; including but not limited to manufacturing, energy, biotechnology, semiconductors, aerospace, and defense.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



20	0
JOBS CREATED	JOBS RETAINED



\$5,638,837
 NON-JOB IMPACT

Center Name: Center for Future Energy Systems (CFES) at Rensselaer Polytechnic Institute

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Capital Region

State funding: \$921,200

Matching funding: \$2,685,035

About: CFES conducts research to accelerate the development of energy efficient and renewable energy technologies. Working with other academic and government institutions, and with many industry partners, CFES focuses on the development and application of new energy materials, devices and systems. Project areas include low cost, high efficiency photovoltaic solar cells; wind turbine blade performance enhancement; advanced lighting sources; fuel cell testing and characterization; smart buildings; energy storage technologies; renewable energy grid integration; microgrid; and smart grid.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



31

0

JOBS CREATED

JOBS
RETAINED



\$8,279,000

NON-JOB
IMPACT

Center Name: Center for Emerging and Innovative Sciences (CEIS) at the University of Rochester

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Finger Lakes

State funding: \$921,200

Matching funding: \$1,168,152

About: Jointly sponsored by the University of Rochester and the Rochester Institute of Technology, CEIS conducts applied research in the field of electronic imaging and leverages these results toward the sustainment of New York and U.S. leadership in imaging, document processing, and telecommunications. Its technological areas of expertise are in optical components design and manufacturing; optical systems design; image capture circuits, devices, and materials; image processing; image analysis and recognition; multispectral and hyperspectral imaging; and image display and printing.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



17

26

JOBS CREATED

JOBS
RETAINED



\$32,852,035

NON-JOB
IMPACT

Center Name: Center for Biotechnology (CFB) at Stony Brook University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Long Island

State funding: \$921,200

Matching funding: \$8,144,882

About: The Center for Biotechnology serves as an important catalyst in the development of new biomedical technologies and emerging companies in New York State. Through groundbreaking initiatives, the Center supports the advancement of biomedical innovation by helping to bridge the gap between discovery and commercial success and by training the next generation of biomedical leaders.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



43

21

JOBS CREATED

JOBS
RETAINED



\$25,802,967

NON-JOB
IMPACT

Center Name: Sensor CAT at Stony Brook University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Long Island

State funding: \$921,200

Matching funding: \$1,104,341

About: The Sensor CAT provides universal modern prototyping facilities, assistance from its entrepreneur-in-residence, and connections to the investment community. It serves NYS industries that develop, manufacture, or employ sensors. Primary areas of expertise and research include optoelectronic sensor systems; sensors and energy storage devices based on carbon nanomaterials; mid-IR sources and sensor systems; superconducting sensors and electronics with ultra-low energy consumption; RF-based sensor systems; and universal sensor platforms based on energy harvesting.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



29

8

JOBS CREATED

JOBS
RETAINED



\$34,468,000

NON-JOB
IMPACT

Center Name: Center for Advanced Systems and Engineering (CASE) at Syracuse University

ESD Program: Centers for Advanced Technology



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CENTER PROFILE

Region: Central NY

State funding: \$921,200

Matching funding: \$1,362,894

About: CASE fuses university-based technical competency with industry-specific knowledge in complex information systems; including but not limited to predictive analysis, data fusion, data mining, cyber security, intelligent computing, modeling, communications systems and networks-any application of "big data." CASE assembles interdisciplinary academic and private sector teams to develop innovative solutions in complex behavioral, information and communication systems, and serves as a portal by which the private sector can access the resources of Syracuse University in the broad area of information technology.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



12

4

JOBS CREATED

JOBS
RETAINED



\$20,116,335

NON-JOB
IMPACT

CENTERS OF EXCELLENCE (COE)

Program Overview and Purpose

NYSTAR funds eleven Centers of Excellence to foster collaboration between the academic research community and the business sector to develop and commercialize new products and technologies, to promote critical private sector investment in emerging high-technology fields in New York State, and to create and expand technology-related businesses and employment.⁵ This program was created to enhance and accelerate the operations of recipient centers in the facilitation of joint university-industry research and development, product commercialization, and workforce training.

In 2015, a new Center of Excellence was designated in Atmospheric and Environmental Prediction and Innovation at the University at Albany.

Center Summaries for the 2014-2015 Contract Year⁶

Center Name: Center of Excellence in Bioinformatics and Life Sciences (CBLS) at the University at Buffalo

ESD Program: Centers of Excellence



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CENTER PROFILE

Region: Western NY

State funding: \$872,333

Matching funding: ≥\$872,333

About: CBLS is a hub for life sciences innovation and technology-based economic development driving scientific discovery, facilitating collaboration among academia, industry and the public sector to create jobs that directly impact the region's and state's economies.



ECONOMIC IMPACTS

2014-15 CONTRACT YEAR

 135 JOBS CREATED	 136 JOBS RETAINED
 \$140,568,609 NON-JOB IMPACT	

⁵ The COE program is cited in Article 19 of Economic Development Law. Funding is provided under Department of Economic Development Aid to Localities.

⁶ Non-job impacts refer to increased company revenues, cost savings realized by a company, funds acquired by a company, and capital expenditures by a company; as a result of a project undertaken by the center. Appendix 3 contains further notes on methodology.

Center Name: Smart System Technology & Commercialization Center (STC) at SUNY Polytechnic Institute
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Finger Lakes

State funding: \$872,333

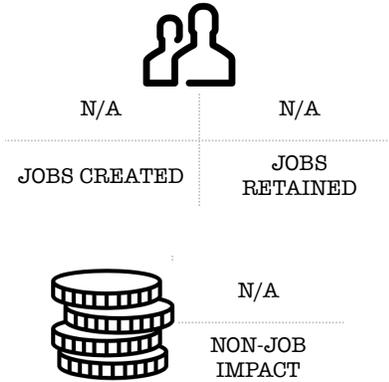
Matching funding: ≥\$872,333

About: This world-class MEMS foundry provides industry with unmatched fabrication capabilities and flexibility for both 150mm and 200mm substrates, meeting companies' needs for prototype to mid-volume manufacturing. STC provides maximum flexibility for a wide array of programs and substrate materials including silicon, quartz, metal, and polyimides. STC utilizes the best available microfabrication approaches and production equipment to solve complex challenges in the areas of inertial sensors, biomedical, microfluidics, green technologies, optical displays, SiOB/ Thermal Imaging, 3-D integration and wafer-level packaging.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



Center Name: Center of Excellence in Environmental and Energy Systems at Syracuse University (SyracuseCoE)
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Central NY

State funding: \$872,333

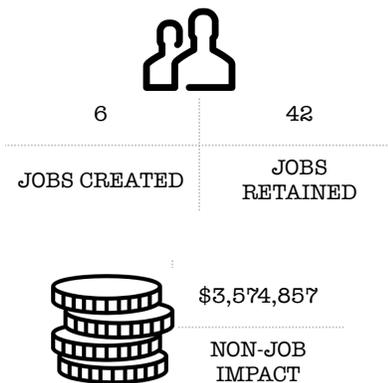
Matching funding: ≥\$872,333

About: SyracuseCoE engages faculty, students and collaborators at 200+ firms and institutions to catalyze research, development, and demonstrations for innovations that improve energy efficiency, environmental quality, and resilience in healthy buildings and cleaner, greener communities.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



Center Name: Center of Excellence in Nanoelectronics and Nanotechnology (CENN) at SUNY Polytechnic Institute

ESD Program: Centers of Excellence



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A Division of Empire State Development



CENTER PROFILE

Region: Capital Region

State funding: \$872,333

Matching funding: ≥\$872,333

About: Located at the Albany NanoTech Complex, CENN is a technology deployment, product prototyping, manufacturing support, and workforce training resource for emerging generations of integrated circuitry (IC). Its targeted portfolio of nanoelectronics-based products ranges from emerging microprocessor and memory computer chips with higher functionality and complexity, to the rapidly evolving areas of micro- and nanosystem based "systems-on-a-chip" (SOC) technologies; including but not limited to biochips, optoelectronics and photonics devices, and nanosensors for the energy and the environment.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



508

3,850

JOBS CREATED

JOBS
RETAINED



\$413,136,204

NON-JOB
IMPACT

Center Name: Center of Excellence in Wireless and Information Technology (CEWIT) at Stony Brook University

ESD Program: Centers of Excellence



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CENTER PROFILE

Region: Long Island

State funding: \$872,333

Matching funding: ≥\$872,333

About: CEWIT's research areas are diverse and cover distributed robotics, expressive and hybrid networks, mobile computing, wireless networks, cyber security, computer vision and image processing, RF systems, microwave sensors, wireless sensor networks, computational genetics and protein docking, computational neurobiology, virtual reality, effective bandwidth utilization, wireless protocols, wireless ad hoc networks and wireless gateways.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



122

68

JOBS CREATED

JOBS
RETAINED



\$15,913,546

NON-JOB
IMPACT

Center Name: Small Scale Systems Integration and Packaging Center (S3IP) at Binghamton University
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Southern Tier

State funding: \$872,333

Matching funding: ≥\$872,333

About: S3IP is advancing the frontiers of microelectronics research and development, specifically addressing challenges in small scale systems design, development, prototyping, process development and manufacturing for the microelectronics industry.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



22

74

JOBS CREATED

JOBS
RETAINED



\$36,390,180

NON-JOB
IMPACT

Center Name: Advanced Energy Research and Technology Center (AERTC) at Stony Brook University
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Long Island

State funding: \$872,333

Matching funding: ≥\$872,333

About: AERTC is located in the Research & Development Park at Stony Brook University and is a true partnership of academic institutions, research institutions, energy providers and industrial corporations. Its mission is innovative energy research, education, and technology deployment with a focus on efficiency, conservation, renewable energy, and nanotechnology applications for new and novel sources of energy.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



18

69

JOBS CREATED

JOBS
RETAINED



\$20,812,990

NON-JOB
IMPACT

Center Name: Center of Excellence in Materials Informatics (CMI) at the University at Buffalo
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Western NY

State funding: \$872,333

Matching funding: ≥\$872,333

About: CMI leverages the University at Buffalo's cutting edge materials science, big data analytics, and advanced manufacturing expertise to drive critical R&D activities that directly impact private sector growth.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



80

47

JOBS CREATED

JOBS
RETAINED



\$21,537,544

NON-JOB
IMPACT

Center Name: Center of Excellence in Advanced & Sustainable Manufacturing (COE-ASM) at Rochester Institute of Technology
ESD Program: Centers of Excellence



CENTER PROFILE

Region: Finger Lakes

State funding: \$872,333

Matching funding: ≥\$872,333

About: COE-ASM helps New York State manufacturing companies improve their competitiveness through partnerships developing and deploying innovative technologies for more efficient and sustainable products and manufacturing processes. Sustainable manufacturing applies "systems thinking" to the design, distribution, production, use, and end-of-life handling of products, leading to greater energy and resource use efficiency and greener products that offer a competitive edge.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



6

16

JOBS CREATED

JOBS
RETAINED



\$1,666,936

NON-JOB
IMPACT

Center Name: Center of Excellence in Data Science at the University of Rochester

ESD Program: Centers of Excellence



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CENTER PROFILE

Region: Finger Lakes

State funding: \$872,333

Matching funding: ≥\$872,333

About: This COE helps maintain New York's leadership in analyzing and commercializing the limitless uses of data to improve quality of life and to fuel economic growth. The Center builds upon university infrastructure and expertise in data science and high performance computing, while leveraging collaborations with other academic partners, industry, and government agencies to develop and deploy concepts, methods, and applications for extracting meaning from large-scale data. Its research is applicable diverse fields including predictive health analytics, cognitive systems, and analytics on demand.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

New center establishment delayed until 2015-16 and impacts unavailable.

INNOVATION HOT SPOTS & CERTIFIED INCUBATORS

Program Overview and Purpose

The New York State Certified Business Incubator and Innovation Hot Spot Program provides financial support for certified incubators in the state to expand their services and reach a greater number of early stage companies.⁷ Through a competitive process over the course of Consolidated Funding Application (CFA) Rounds III, IV, and V, NYSTAR designated ten Innovation Hot Spots—one for each of New York’s economic development regions—and twenty Certified Business Incubators, each for a period of three years. In 2016 (CFA Round VI), a competition was held for the original five Innovation Hot Spot designations (for Central NY, Western NY, Southern Tier, Finger Lakes, and North Country) and ten Incubator designations. These designations, and future designations, will now be for five years.

Support at individual designees vary but generally include: physical space; shared administrative staff; access to capital; coaching; mentoring; networking connections; prototype development; and access to other technical services. In addition, Innovation Hot Spots are charged with coordinating regional entrepreneurial ecosystems, and can offer certain tax benefits to client businesses. The centers are:

Center Name	Center Type	CFA Round
Central New York Innovation Hot Spot	Innovation Hot Spot	III
Finger Lakes Innovation Hot Spot	Innovation Hot Spot	III
North Country Innovation Hot Spot	Innovation Hot Spot	III
Southern Tier Innovation Hot Spot Southern Tier Startup Alliance	Innovation Hot Spot	III
Western New York Innovation Hot Spot WIN: WNY Incubator Network	Innovation Hot Spot	III
Brooklyn Biotech NYS Certified Business Incubator	Incubator	III
Cornell Food Innovation NYS Certified Business Incubator	Incubator	III
Mohawk Valley NYS Certified Business Incubator	Incubator	III
NYS Clean Tech Certified Business Incubator	Incubator	III
NYU Tandon School of Engineering Certified Incubator	Incubator	III
Rensselaer Polytechnic Institute (RPI) NYS Certified Business Incubator	Incubator	III
Stony Brook University NYS Certified Business Incubator	Incubator	III
Tech Valley NYS Certified Business Incubator	Incubator	III
The Accelerator Powered by the Orange County IDA	Incubator	III
Capital Region Innovation Hot Spot: Innovate 518	Innovation Hot Spot	IV
Long Island Innovation Hot Spot	Innovation Hot Spot	IV
Mid-Hudson Valley Innovation Hot Spot BioInc @New York Medical College	Innovation Hot Spot	IV
Mohawk Valley Innovation Hot Spot thINCubator	Innovation Hot Spot	IV
New York City Innovation Hot Spot	Innovation Hot Spot	IV
Biomedical Acceleration and Commercialization Center at Albany Medical College	Incubator	V
Brooklyn Fashion + Design Accelerator Pratt Institute	Incubator	V
Fredonia Technology Incubator	Incubator	V
Icahn School of Medicine at Mount Sinai	Incubator	V
IncubatorWorks	Incubator	V
LaunchPad Long Island	Incubator	V
Mohawk Valley Farm & Food Business Incubator	Incubator	V
NY Designs at LaGuardia Community College	Incubator	V
Rev Ithaca Startup Works	Incubator	V

⁷ This program is program is cited in Article 16-v of the Urban Development Corporation Act. Funding is provided under Department of Economic Development Aid to Localities.

Center Summaries for the Past Year

In the 2014-15 contract year, with the first tranche of designated centers reporting, this program resulted in the creation of 285 jobs, the retention of 484 jobs, and about \$177.3 million in non-job economic impact.⁸

Center Name: Western New York Innovation Hot Spot /
WIN: WNY Incubator Network
ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Western NY
State funding: \$250,000
Matching funding: \$500,000

About: WIN is headed by the University at Buffalo and focuses on formation of investable, market-driven companies with innovative products meeting customer needs. Partner incubators include IncubatorWorks; Olean Business Incubator; Directed Energy Virtual Incubator; Fredonia Technology Incubator; Harrison Place; UB's Technology Incubator; Beecher Innovation Center; Z80 Labs; 43North; and the UB BioSciences Incubator.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	16	3
COMPANIES ASSISTED		COMPANIES GRADUATED
	0	55
JOBS CREATED		JOBS RETAINED
	\$1,390,180	
	NON-JOB IMPACT	

⁸ Non-job impacts refer to increased company revenues, cost savings realized by a company, funds acquired by a company, and capital expenditures by a company; as a result of a project undertaken by the center. Appendix 3 contains further notes on methodology. Note that for some programs, sums of raw data containing fractions of jobs created or retained may result in discrepancies in these simplified totals.

Center Name: North Country Innovation Hot Spot
ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: North Country

State funding: \$250,000

Matching funding: \$500,000

About: Clarkson University has developed a scalable model with a track record of success through Center for Advanced Materials Processing, the Shipley Center for Innovation, and the Reh Center for Entrepreneurship. By centralizing resources and services at Clarkson and de-centralizing idea generation and capture across the region, the North Country is harnessing existing intellectual capital to create businesses and drive economic development.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	76	10
COMPANIES ASSISTED		COMPANIES GRADUATED
	27	12
JOBS CREATED		JOBS RETAINED
	\$2,989,125	
	NON-JOB IMPACT	

Center Name: Southern Tier Innovation Hot Spot / Southern Tier Startup Alliance
ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Southern Tier

State funding: \$250,000

Matching funding: \$500,000

About: The Southern Tier Startup Alliance is an organization of business incubators led by a strong partnership among Binghamton University, Cornell University, and Corning Enterprises. The incubators include Binghamton University's Start-Up Suites, The Center, IncubatorWorks, Cornell University's Kevin M. McGovern Family Center for Venture Development in the Life Sciences, and Rev: Ithaca Startup Works. Its purpose is to provide support to people starting and growing companies in the region.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	29	1
COMPANIES ASSISTED		COMPANIES GRADUATED
	N/A	N/A
JOBS CREATED		JOBS RETAINED
	N/A	
	NON-JOB IMPACT	

Center Name: Central New York Innovation Hot Spot
ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Central NY

State funding: \$250,000

Matching funding: \$500,000

About: The CNY Innovation Hot Spot is a consortium of 21 partners headed by CenterState CEO at The Tech Garden. The consortium delivers the most innovative incubation and business development programming combining higher education resources and programs, like Syracuse University, with early stage funding, coaching, mentorship and physical and virtual incubation.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	16	2
COMPANIES ASSISTED		COMPANIES GRADUATED
	11	59
JOBS CREATED		JOBS RETAINED
	\$4,903,294	
	NON-JOB IMPACT	

Center Name: Finger Lakes Innovation Hot Spot
ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Finger Lakes

State funding: \$250,000

Matching funding: \$500,000

About: This regional consortium is led by High Tech Rochester and the Rochester Institute of Technology, and includes RIT's Center for Urban Entrepreneurship, Upstate MedTech Park in Batavia, and the Cornell Agriculture and Food Technology Park in Geneva.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	23	7
COMPANIES ASSISTED		COMPANIES GRADUATED
	N/A	N/A
JOBS CREATED		JOBS RETAINED
	N/A	
	NON-JOB IMPACT	

Center Name: NYS Clean Tech Certified Business Incubator / iCANny

ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Mid-Hudson

State funding: \$125,000

Matching funding: \$250,000

About: iCANny commercializes energy, cleantech, fintech, medtech, and information technology products or services. Its executives are experts in internet and traditional marketing, operations, financial strategies, and business planning.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



8

COMPANIES ASSISTED

0

COMPANIES GRADUATED



8

JOBS CREATED

12

JOBS RETAINED



\$534,000

NON-JOB IMPACT

Center Name: Cornell Food Innovation NYS Certified Business Incubator

ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Finger Lakes

State funding: \$125,000

Matching funding: \$250,000

About: The Cornell Food Innovation NYS Certified Business Incubator assists start-up food based businesses in the Finger Lakes region.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



7

COMPANIES ASSISTED

0

COMPANIES GRADUATED



6

JOBS CREATED

0

JOBS RETAINED



\$7,277,600

NON-JOB IMPACT

Center Name: Tech Valley NYS Certified Business Incubator
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: Capital Region

State funding: \$125,000

Matching funding: \$250,000

About: The Tech Valley NYS Certified Incubator links numerous regional assets and business development programs into one unified program.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	3	0
COMPANIES ASSISTED		COMPANIES GRADUATED
	5	1
JOBS CREATED		JOBS RETAINED
	\$701,120	
	NON-JOB IMPACT	

Center Name: The Accelerator Powered by the Orange County IDA
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: Mid-Hudson

State funding: \$125,000

Matching funding: \$250,000

About: The Accelerator, strategically located Stewart International Airport with proximity to major interstates, is focused on bringing manufacturing back to the Mid-Hudson Valley. Powered by the Orange County IDA, The Accelerator works to attract manufacturing-based businesses in the areas of fashion design and production, bottling, artisan manufacturing, and artisan foods by providing below-market occupancy costs, workforce training, mentoring programs, easy access to experienced professionals, and a high-tech plug-and-play environment with a host of other resources.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	4	0
COMPANIES ASSISTED		COMPANIES GRADUATED
	12	16
JOBS CREATED		JOBS RETAINED
	\$1,781,228	
	NON-JOB IMPACT	

Center Name: Mohawk Valley NYS Certified Business Incubator
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: Mohawk Valley
State funding: \$125,000
Matching funding: \$250,000
About: The Mohawk Valley NYS Certified Business Incubator is a regional consortium headed by the Griffiss Institute (GI) and includes the thINCubator and other regional economic development entities. The GI facilitates technology transfer from the Air Force Research Laboratory in Rome, New York to industry for commercialization. In this manner, the incubator links numerous regional high tech, information, and cybersecurity assets with business development programs.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	9	0
COMPANIES ASSISTED		COMPANIES GRADUATED
	14	6
JOBS CREATED		JOBS RETAINED
	\$1,335,000	
	NON-JOB IMPACT	

Center Name: Rensselaer Polytechnic Institute NYS Certified Business Incubator
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: Capital Region
State funding: \$125,000
Matching funding: \$250,000
About: The RPI NYS Certified Business Incubator links numerous regional assets and business development programs into one unified program.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	N/A	N/A
COMPANIES ASSISTED		COMPANIES GRADUATED
	N/A	N/A
JOBS CREATED		JOBS RETAINED
	N/A	
	NON-JOB IMPACT	

Center Name: Brooklyn Biotech NYS Certified Business Incubator
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: New York City
State funding: \$125,000
Matching funding: \$250,000
About: The Brooklyn Biotech NYS Certified Business Incubator links numerous regional bio-based assets and business development programs into one unified program.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	15	5
COMPANIES ASSISTED		COMPANIES GRADUATED
	27	80
JOBS CREATED		JOBS RETAINED
	\$12,943,355	
	NON-JOB IMPACT	

Center Name: NYU Tandon School of Engineering Certified Incubator
ESD Program: Innovation Hot Spots & Certified Incubators



CENTER PROFILE

Region: New York City
State funding: \$125,000
Matching funding: \$250,000
About: The NYU Tandon School of Engineering Certified Incubator assists start-up businesses in the New York City region through an individualized two-year incubation program that utilizes best practices and provides mentorship, access to programming, service providers, potential customers, investors and business related services. With linkages to the University and other economic development programs, the incubator program is situated in an ideal position to support new ventures from first point of entry in the market to scalability and sustainability.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR

	N/A	16
COMPANIES ASSISTED		COMPANIES GRADUATED
	51	0
JOBS CREATED		JOBS RETAINED
	\$111,700,000	
	NON-JOB IMPACT	

Center Name: Stony Brook University NYS Certified Business Incubator

ESD Program: Innovation Hot Spots & Certified Incubators



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CENTER PROFILE

Region: Long Island

State funding: \$125,000

Matching funding: \$250,000

About: The Stony Brook University NYS Certified Incubator links numerous regional assets and business development programs into one unified program.

ECONOMIC IMPACTS



2014-15 CONTRACT YEAR



83

COMPANIES ASSISTED

2

COMPANIES GRADUATED



124

JOBS CREATED

243

JOBS RETAINED



\$31,759,569

NON-JOB IMPACT

HIGH PERFORMANCE COMPUTING

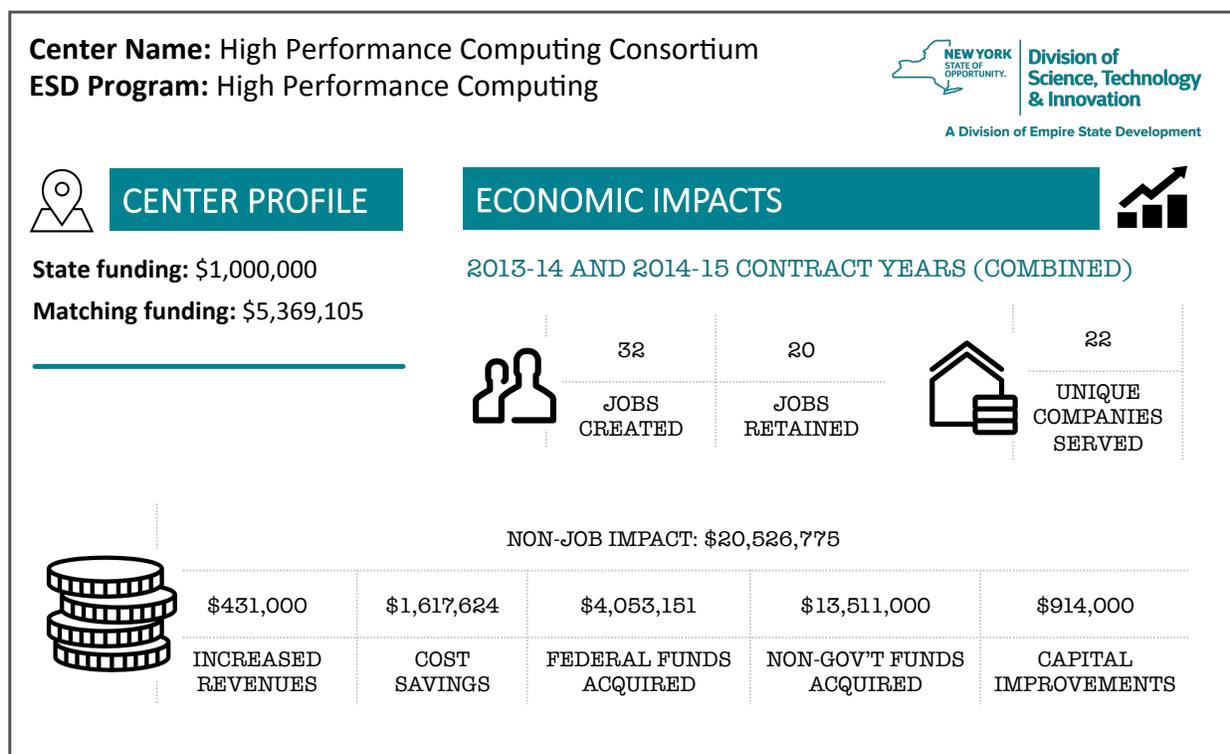
Program Overview and Purpose

New York State is a global leader in computational resources and talent in the areas of simulation-based engineering and high performance computing. NYSTAR supports the High Performance Computing Consortium (HPC^{NY}) in order to leverage these resources, helping New York State companies gain competitive advantage through cost-effective access to advanced computing assets and expertise.⁹

HPC^{NY} offers several forms of support to industry to solve business, technology, and R&D needs including:

- Access to its high-speed networks and high-performance platforms, enabling industrial entities and research groups to make scientific breakthroughs and to accelerate the engineering and development path of complex, ground-breaking designs to reliable, accurate, innovative product and process performance that can provide competitive advantage; and
- Education, outreach and training in simulation-based engineering science. In addition to other resources, HPC^{NY} also offers web-based tutorial and training sessions and user support.

Center Summary for the Past Two Years



⁹ This program is not cited in New York State statute and is funded through the Matching Grants Leverage Program.

SCIENCE + TECHNOLOGY LAW CENTER

Program Overview and Purpose

NYSTAR is the primary funding source for the New York State Science + Technology Law Center¹⁰ (NYS STLC) housed at Syracuse University College of Law. This organization is dedicated to providing legal research, education and information to entrepreneurs and companies to help commercialize new technologies from lab to market. From market landscapes to intellectual property protection to licensing options to potential funding sources, NYS STLC has helped scores of companies and institutions make their technology vision become a commercial reality.

NYS STLC began its fourth three-year designation in April 2015. In the year following that date, NYS STLC completed 53 research projects. Key areas of research and analysis typically performed include intellectual property research; market research; regulatory pathways; legal issues; and commercialization analysis. As the number of constituents seeking research has grown, the types of research products being made available has evolved to meet the increasing demand. They now include Comprehensive Research Reports, Targeted Research, Consultations, and a program called the “Landing/Launchpad” clinic.

Educational activity in this period included a series of webcasts that are posted on the NYS STLC web site, covering the topics of “SEC Considerations and Exemptions for Small and New Companies” and “IP Considerations in Product Development.” The NYS STLC also hosted alumni information sessions to increase student access to technology commercialization professionals. NYS STLC maintains an information-rich website and issues a regular newsletter. Key offerings of NYS STLC are its “Startup Guidebook” and “FDA Guidebook” that provide critical references for entrepreneurs navigating business startup and the federal regulatory landscape.

NYS STLC participated in, sponsored, and/or hosted a variety of meetings and events in the year following its re-designation, for example pre-seed workshops, commercialization-focused conferences, and other events that allow the center to engage with other innovation assets and early-stage companies.

¹⁰ This program is cited in Article 10a of Public Authorities Law. Funding is provided under Department of Economic Development Aid to Localities.

DIGITAL GAMING HUBS

Program Overview and Purpose

NYSTAR-supported Digital Gaming Hubs¹¹ were established in 2016 at three New York State higher education institutions: New York University, Rensselaer Polytechnic Institute, and Rochester Institute of Technology. These universities educate some of the top designers and computer engineers in the world, and this program further equips them with the resources needed to continue paving the way with groundbreaking digital gaming research and development. Ultimately, these investments will strengthen the state economy, create new jobs, and advance New York's position as a national leader in digital media development.

The Digital Gaming Hubs perform the following functions:

- Create collaborative activities that bring together industry, higher education, non-profit organizations, students, and individuals to foster the creation of new games or companies;
- Provide resources and mentoring to encourage students and entrepreneurs to enter the growing industry;
- Assist existing companies with gaming concepts, technologies and trends;
- Host events focused on assisting the gaming community; and
- Increase the economic impact to New York as a result of fostering innovation.

As these are newly-designated Hubs, no impacts are available to report for 2015.

¹¹ This program is not cited in New York State statute. Funding is provided under Department of Economic Development Aid to Localities.

MATCHING GRANTS LEVERAGE PROGRAM

Program Overview and Purpose

NYSTAR reviews and coordinates requests for New York State matching grants and support letters to strengthen applicants' proposals to federal agencies, foundations, and other grant-making organizations.¹² Higher education and not-for-profit research institutions in New York State are eligible to apply for these state matching funds. The purpose of this program is to attract more federal R&D funding to support technology development and commercialization efforts in New York State.

Funded Initiatives

At the time of this report's writing, recent federally funded research initiatives supported through NYSTAR's Matching Grants Leverage Program included:

- The Cornell Center for Materials Research, supported by the National Science Foundation;
- The Center for Bright Beams at Cornell University, supported by the National Science Foundation;
- A Data Repository, Analysis, and Science Center and related "lab hub" at Mount Sinai's Icahn School of Medicine, supported by the National Institutes of Health's Child Health Environmental Assessment Resource program;
- Research at Cold Spring Harbor Lab supported by the National Institutes of Health's National Research Service Award Institutional Research Training grants;
- The SUNY College of Environmental Science and Forestry's acquisition and use of a cryo field emission scanning transmission electron microscope, supported by the National Science Foundation;
- Stony Brook University's SeaWulf, a high-performance computer cluster supported by the National Science Foundation;
- Cornell University's Center for the Attainment of Superior Crystals through Atomic-level Design and Evaluation, supported by the National Science Foundation;
- The Center for Mesoscale Transport Properties at Stony Brook University, a Department of Energy-supported Energy Frontier Research Center;
- The NorthEast Center for Chemical Energy Storage at Binghamton University, a Department of Energy-supported Energy Frontier Research Center;
- The Community Resilience Center of Excellence Program at Columbia University, supported by the National Institute of Standards and Technology;

¹² This program is not cited in New York State statute. Funding is provided under Department of Economic Development Aid to Localities.

- Syracuse University's development of a near-range micro-environmental control system, supported by the Department of Energy's Advanced Research Projects Agency;
- A Clinical and Translational Science Award to Mount Sinai's Icahn School of Medicine from the National Institutes of Health;
- The University at Buffalo's grant to provide a Technology Audit Service for XSEDE, the National Science Foundation-supported cyberinfrastructure for open, scientific research;
- The Long Island Bioscience Hub, supported by a National Institutes of Health award to Stony Brook University's Center for Biotechnology;
- Rochester Institute of Technology's role in the Digital Manufacturing & Design Innovation Institute, a Department of Defense-supported institute within the National Network for Manufacturing Innovation;
- Rensselaer Polytechnic Institute's Smart Lighting Engineering Research Center;
- Cornell University's Platform for the Accelerated Realization, Analysis & Discovery of Interface Materials; and
- Cornell NanoScale Science and Technology Facility.

FACULTY DEVELOPMENT & TECHNOLOGY TRANSFER

Program Overview and Purpose

New York's world-class universities and research institutions are powerful drivers of economic development. The Faculty Development Program and Technology Transfer Incentive Program further support New York's leadership in technology-related research and commercialization.¹³

The Faculty Development Program assists institutions of higher education in New York State in the recruitment and retention of leading entrepreneurial research faculty in science and technology fields with strong commercial potential. The Technology Transfer Incentive Program helps New York companies commercialize high-tech innovations in partnership with colleges and universities by providing awards to institutions of higher education to move leading-edge technologies from the research lab to the marketplace.

These programs thereby support a wide array of activities associated with commercialization, such as improvement of product prototypes and existing products, new product development, development of manufacturing processes for new products, and filing patent applications.

Requests for Proposals to these programs are issued periodically when funding is available. As of the writing of this report, NYSTAR anticipated releasing an RFP in early 2017.

¹³ This program is cited in Article 10b of Executive Law. Funding is provided under Department of Economic Development Aid to Localities.

OTHER UPDATES

Recent Competitions / Requests for Proposals

The following is a list of competitions NYSTAR has held to designate centers for funding over the past several years.

RFP Release Date	Program	# of Awards	Designation Period (Years)	Yearly Award Amt.	Purpose
CFA Round 6	Innovation Hot Spots & NY Certified Incubators	15	5	\$125,000 to \$250,000	This program provides significant financial support for business incubators and their programs of assistance to early stage companies. In Round 6, competitions were held for five Hot Spot and ten Incubator designations that were approaching expiration.
10/26/2015	NY Manufacturing Extension Partnership	11	5*	\$575,000 to \$1,400,000	Establish a network of 10 regional and 1 statewide non-profit organizations that provide services, expertise and guidance to NYS manufacturers from an early stage through maturity. The primary focus of this program is to assist manufacturers with under 500 employees. Through this program, a Manufacturing Innovation Fund has been created and is administered by the statewide center in an effort to accelerate growth of early stage manufacturers.
CFA Round 5	Innovation Hot Spots & NY Certified Incubators	10	3	\$125,000	This program provides significant financial support for business incubators and their programs of assistance to early stage companies. Ten Incubators were designated this round.
2/27/2015	Centers for Advanced Technology	10	10	\$921,200	Spur technology-based applied research and economic growth and encourage applied research collaboration and innovation with industry.
2/18/2015	Digital Gaming Hubs	3	3	\$150,000	Create Hubs focused on expanding regional gaming ecosystems by engaging industry, non-profits, educational institutions, students, and other individuals in collaborative activities.
9/15/2014	Science & Technology Law Center	1	3	\$343,000	Establish a statewide resource to assist with technology-related legal issues.
CFA Round 4	Innovation Hot Spots & NY Certified Incubators	5	3	\$250,000	This program provides significant financial support for business incubators and their programs of assistance to early stage companies. Five Hot Spots were designated this round.
CFA Round 3	Innovation Hot Spots & NY Certified Incubators	15	3	\$125,000 to \$250,000	This program provides significant financial support for business incubators and their programs of assistance to early stage companies. Hot Spots are expected to act as the regional hub of entrepreneur activity. (Five Hot Spots and ten Incubators were designated this round.)

* With five-year renewal

CFA: Consolidated Funding Application

Federal Grants

In the past year, NYSTAR was awarded two federal cooperative agreements from the National Institute of Standards and Technology.

The first award, for \$29,925,970 over five years beginning January 2016, is Empire State Development's successful re-designation as the New York Manufacturing Extension Partnership. NYSTAR also held a competition in 2015 to select eleven sub-recipient organizations—one in each economic development region and one "statewide" center—to implement the program.

The second award, for \$1.2 million over two years beginning October 2016, is to embed New York Manufacturing Extension Partnership (NY MEP) personnel into institutes that are part of Manufacturing USA (formerly the National Network for Manufacturing Innovation), to increase the impact of those institutes on small and mid-sized U.S. manufacturers. As the NIST-designated New York MEP Center, NYSTAR plans to embed NY MEP specialists across four Institutes:

- AIM Photonics (headquartered in New York State);
- The Institute for Advanced Composites Manufacturing Innovation (IACMI), by way of embedding at the Composite Prototyping Center (CPC) on Long Island, which is designated as IACMI's Northeastern U.S. satellite;
- The Digital Design and Manufacturing Innovation Institute (DMDII), by way of embedding at Rochester Institute of Technology, a DMDII Tier 1 Academic Member; and
- America Makes, by way of embedding at Rochester Institute of Technology, an America Makes Silver Member.

The specialists will serve as a liaison between the Institutes, the MEP network, and small and mid-sized manufacturers (SMMs). The specialists will be responsible for designing and executing a set of "push" activities (those that advance deployment of Institute research) and "pull" activities (those that help the Institutes understand and respond to the innovation needs of SMMs). This will increase U.S. and New York manufacturers' competitiveness by accelerating innovation and technology adoption by small and mid-sized companies.

Recent and Planned Initiatives

New York's ten Regional Economic Development Councils, established by Governor Andrew M. Cuomo, are focused on job creation and economic growth strategies in key industries that are competitive or emerging in their regions, building on unique strengths and assets and addressing areas of opportunity. In 2015, with guidance from NYSTAR, each Council formally designated a priority industry cluster and developed a plan to further enhance the strategic allocation of economic development resources to those clusters. In support of this initiative, NYSTAR has charged each regional New York Manufacturing Extension Partnership (NY MEP) center with offering tailored expertise and services to manufacturers in these clusters.

The clusters are:

- Capital Region - Research, Development, & Commercialization;
- Central New York - Data to Decisions;
- Finger Lakes - Optics, Photonics, and Imaging;
- Long Island - Biotechnology;
- Mid-Hudson - Food and Beverage Manufacturing;
- Mohawk Valley - Cybersecurity;
- New York City - Smart Cities;
- North Country - Transportation Equipment and Materials;
- Southern Tier - Advanced Transportation Products, Components, and System Controls; and
- Western New York - Materials and Machinery.

In the coming year, NYSTAR plans to undertake an initiative to further accelerate commercialization in New York State, pairing patent intelligence with structured activities that encourage productive collisions between researchers and innovators and the entrepreneurs and investors who can commercialize their discoveries. The initiative will work across NYSTAR programs to leverage the innovation capacity of researchers and centers supported by ESD funds.

APPENDIX 1: FIVE-YEAR ECONOMIC IMPACTS¹⁴

New York Manufacturing Extension Partnership

The impacts presented below are for the ten New York MEP sub-recipients that held contracts through 2015:

- Hudson Valley Technology Development Center (HVTDC), serving the Mid-Hudson Region;
- Alliance for Manufacturing and Technology (AM&T), serving the Southern Tier Region;
- Industrial & Technology Assistance Corporation (ITAC), serving the New York City Region;
- Insyte Consulting (Insyte), serving the Western New York Region;
- High Tech Rochester (HTR), serving the Finger Lakes Region;
- Center for Economic Growth (CEG), serving the Capital Region;
- Central New York Technology Development Organization (CNYTDO), serving the Central New York Region;
- CITEC Inc. (CITEC), serving the North Country Region;
- Long Island Forum for Technology (LIFT), serving Long Island; and
- Mohawk Valley Applied Technology Corporation (MVATC), serving the Mohawk Valley Region.

The NY MEP program has had a clear positive effect on continued location and growth of industrial firms in New York State. This is reflected in the creation of 4,722 jobs, the retention of 15,955 jobs, and \$2.3 billion in increased and retained sales by companies attributable to their work with the NY MEP system.

¹⁴ Note that for some programs, sums of raw data containing fractions of jobs created or retained may result in discrepancies in these simplified tables.

FIVE YEAR TOTALS (2011-2015)	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	N/A	114	267	\$133,945,000	\$14,610,500	\$30,502,690	\$179,058,190
AM&T	N/A	423	3,372	\$518,348,966	\$12,296,446	\$41,205,243	\$571,850,655
ITAC	N/A	1,580	2,786	\$338,347,976	\$211,868,414	\$279,984,807	\$830,201,197
Insyte	N/A	1,178	3,233	\$793,258,503	\$63,445,182	\$146,506,636	\$1,003,210,321
HTR	N/A	269	714	\$32,468,551	\$10,084,450	\$28,715,780	\$71,268,781
CEG	N/A	271	1,446	\$86,917,500	\$21,656,062	\$34,392,659	\$142,966,221
CNYTDO	N/A	332	1,850	\$260,887,168	\$21,844,418	\$81,257,500	\$363,989,086
CITEC	N/A	230	960	\$33,132,155	\$26,174,893	\$22,539,405	\$81,846,453
LIFT	N/A	200	501	\$91,138,100	\$12,016,500	\$32,009,670	\$135,164,270
MVATC	N/A	125	826	\$32,470,000	\$7,616,640	\$13,878,648	\$53,965,288
NY MEP Totals	N/A	4,722	15,955	\$2,320,913,919	\$401,613,505	\$710,993,038	\$3,433,520,462

YEAR: 2015	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	33	8	77	\$35,150,000	\$1,080,000	\$7,199,000	\$43,429,000
AM&T	45	138	1,077	\$197,098,000	\$904,200	\$14,442,500	\$212,444,700
ITAC	101	558	625	\$62,900,000	\$26,851,000	\$88,888,500	\$178,639,500
Insyte	85	209	956	\$247,531,100	\$10,199,000	\$25,726,110	\$283,456,210
HTR	135	55	271	\$5,088,000	\$1,393,800	\$6,651,000	\$13,132,800
CEG	32	79	423	\$9,689,000	\$16,756,562	\$6,553,630	\$32,999,192
CNYTDO	27	35	115	\$24,077,549	\$1,121,000	\$6,456,700	\$31,655,249
CITEC	25	29	222	\$8,225,255	\$699,483	\$1,086,004	\$10,010,742
LIFT	27	4	10	\$2,500,000	\$2,600,000	\$14,560,000	\$19,660,000
MVATC	18	51	344	\$13,000,000	\$2,795,000	\$8,278,805	\$24,073,805
NY MEP Totals	528	1,166	4,120	\$605,258,904	\$64,400,045	\$179,842,249	\$849,501,198

YEAR: 2014	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	42	26	100	\$79,350,000	\$3,230,000	\$6,349,500	\$88,929,500
AM&T	40	45	772	\$80,092,211	\$3,297,166	\$9,196,300	\$92,585,677
ITAC	124	291	564	\$76,916,000	\$36,577,500	\$71,414,500	\$184,908,000
Insyte	71	342	727	\$231,464,496	\$11,118,000	\$30,053,998	\$272,636,494
HTR	58	17	18	\$1,550,000	\$1,103,000	\$1,097,630	\$3,750,630
CEG	61	73	271	\$16,658,500	\$745,500	\$5,187,979	\$22,591,979
CNYTDO	21	49	258	\$69,705,000	\$1,478,500	\$15,388,000	\$86,571,500
CITEC	30	13	343	\$854,900	\$1,627,500	\$1,377,200	\$3,859,600
LIFT	44	37	83	\$3,501,600	\$1,165,500	\$3,035,000	\$7,702,100
MVATC	20	8	28	\$1,665,000	\$204,000	\$380,000	\$2,249,000
NY MEP Totals	511	901	3,164	\$561,757,707	\$60,546,666	\$143,480,107	\$765,784,480

YEAR: 2013	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	36	16	22	\$2,660,000	\$600,000	\$1,594,000	\$4,854,000
AM&T	48	115	693	\$110,975,000	\$1,621,600	\$9,253,943	\$121,850,543
ITAC	156	264	509	\$77,144,888	\$48,210,300	\$60,606,550	\$185,961,738
Insyte	116	307	615	\$165,846,272	\$9,540,000	\$57,292,161	\$232,678,433
HTR	21	10	43	\$8,550,000	\$925,000	\$4,979,000	\$14,454,000
CEG	90	40	334	\$16,540,000	\$1,494,000	\$8,165,450	\$26,199,450
CNYTDO	31	113	843	\$71,981,000	\$4,715,000	\$24,912,000	\$101,608,000
CITEC	20	20	168	\$4,400,000	\$815,160	\$3,605,800	\$8,820,960
LIFT	102	40	101	\$10,325,000	\$3,371,000	\$4,220,000	\$17,916,000
MVATC	27	17	119	\$3,500,000	\$330,000	\$2,024,593	\$5,854,593
NY MEP Totals	647	942	3,447	\$471,922,160	\$71,622,060	\$176,653,497	\$720,197,717

YEAR: 2012	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	36	26	21	\$535,000	\$2,500,500	\$6,438,000	\$9,473,500
AM&T	40	98	798	\$106,985,226	\$4,034,080	\$6,129,500	\$117,148,806
ITAC	177	232	542	\$73,606,600	\$66,263,800	\$42,169,207	\$182,039,607
Insyte	91	236	662	\$106,447,635	\$27,975,182	\$21,672,367	\$156,095,184
HTR	29	67	137	\$7,120,000	\$2,150,000	\$9,690,000	\$18,960,000
CEG	131	59	375	\$39,915,000	\$1,564,500	\$8,320,100	\$49,799,600
CNYTDO	30	86	541	\$79,354,000	\$8,850,600	\$27,249,700	\$115,454,300
CITEC	20	42	88	\$3,920,000	\$15,150,000	\$6,685,001	\$25,755,001
LIFT	36	101	243	\$64,226,500	\$3,943,000	\$9,372,400	\$77,541,900
MVATC	19	15	168	\$4,900,000	\$2,225,000	\$1,451,500	\$8,576,500
NY MEP Totals	609	962	3,575	\$487,009,961	\$134,656,662	\$139,177,775	\$760,844,398

YEAR: 2011	Unique Companies Served	Jobs Created	Jobs Retained	Increased / Retained Sales	Cost Savings	New Investment	Total Non-Jobs Impact
HVTDC	17	38	47	\$16,250,000	\$7,200,000	\$8,922,190	\$32,372,190
AM&T	52	27	32	\$23,198,529	\$2,439,400	\$2,183,000	\$27,820,929
ITAC	133	235	546	\$47,780,488	\$33,965,814	\$16,906,050	\$98,652,352
Insyte	57	84	273	\$41,969,000	\$4,613,000	\$11,762,000	\$58,344,000
HTR	51	120	245	\$10,160,551	\$4,512,650	\$6,298,150	\$20,971,351
CEG	37	20	43	\$4,115,000	\$1,095,500	\$6,165,500	\$11,376,000
CNYTDO	14	49	93	\$15,769,619	\$5,679,318	\$7,251,100	\$28,700,037
CITEC	27	126	139	\$15,732,000	\$7,882,750	\$9,785,400	\$33,400,150
LIFT	28	18	64	\$10,585,000	\$937,000	\$822,270	\$12,344,270
MVATC	24	34	167	\$9,405,000	\$2,062,640	\$1,743,750	\$13,211,390
NY MEP Totals	440	751	1,649	\$194,965,187	\$70,388,072	\$71,839,410	\$337,192,669

Centers for Advanced Technology

The impacts presented below are for the fifteen Centers for Advanced Technology that held contracts through the 2014-15 contract year:

- Center for Advanced Ceramic Technology (CACT) at Alfred University;
- Center for Advanced Technology in Nanomaterials and Nanoelectronics (CATN2) at SUNY Polytechnic Institute (formerly at University at Albany);
- Integrated Electronics Engineering Center (IEEC) at Binghamton University;
- Center for Advanced Biomedical and Bioengineering Technology at the University at Buffalo (UB CAT);
- CUNY Center for Advanced Technology in Photonics Applications;
- Center for Advanced Materials Processing (CAMP) at Clarkson University;
- Center for Advanced Information Management at Columbia University;
- Center for Life Science Enterprise at Cornell University;
- Center for Advanced Technology in Telecommunications and Distributed Information Systems (CATT) at New York University Polytechnic School of Engineering;
- Center for Automation Technologies and Systems (CATS) at Rensselaer Polytechnic Institute;
- Center for Future Energy Systems (CFES) at Rensselaer Polytechnic Institute;
- Center for Emerging and Innovative Sciences (CEIS) at the University of Rochester;
- Center for Biotechnology (CFB) at Stony Brook University;
- Sensor CAT at Stony Brook University; and
- Center for Advanced Systems and Engineering (CASE) at Syracuse University.

In the impact tables, these centers are identified by the university holding the contract.

FIVE YEAR TOTALS (2010/11 - 2014/15)	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	212	61	152	424	159	15	56	230	654	\$539,529,449	\$19,585,930	\$11,641,677	\$5,968,350	\$21,043,187	\$597,768,593
Alfred U.	11	11	11	33	63	13	18	94	127	\$62,563,945	\$19,415,110	\$4,179,623	\$8,375,500	\$1,929,967	\$96,464,145
Binghamton U.	52	36	23	111	66	108	26	199	310	\$10,351,000	\$26,868,368	\$1,840,000	\$21,706,100	\$2,628,841	\$63,394,309
U. Buffalo	281	44	99	423	190	161	87	438	861	\$23,578,423	\$19,370,380	\$31,373,917	\$246,986,771	\$6,801,055	\$328,110,545
CUNY	70	25	20	114	77	7	16	100	214	\$26,804,350	\$21,261,040	\$10,632,513	\$14,582,700	\$4,567,275	\$77,847,878
Clarkson U.	50	43	6	99	31	2	0	33	132	\$138,313,198	\$36,520,141	\$2,174,424	\$5,645,000	\$5,300,691	\$187,953,454
Columbia U.	88	0	5	93	31	0	3	34	127	\$24,690,422	\$200,405,581	\$51,158,563	\$26,311	\$1,484,000	\$277,764,877
Cornell U.	7	2	0	9	2	0	0	2	11	\$228,000	\$143,000	\$1,854,407	\$1,022,500	\$402,700	\$3,650,607
NYU Poly	128	0	3	131	82	0	0	82	213	\$556,000	\$200,780,000	\$1,961,868	\$67,100,000	\$0	\$270,397,868
Rensselaer (Auto.)	91	25	11	127	7	0	0	7	134	\$68,452,241	\$1,265,432	\$50,683,628	\$7,060,700	\$2,028,576	\$129,490,577
Rensselaer (Energy)	82	27	24	133	2	0	0	2	135	\$3,648,077	\$3,215,266	\$4,958,503	\$34,804,000	\$2,404,841	\$49,030,687
U. Rochester	53	25	22	100	128	37	22	187	286	\$61,488,300	\$18,697,853	\$18,065,844	\$15,731,545	\$7,702,891	\$121,686,433
Stony Br. (Bio)	130	6	52	188	21	0	0	21	209	\$147,407,391	\$4,671,061	\$25,536,336	\$64,513,585	\$8,633,712	\$250,762,085
Stony Br. (Sensor)	71	44	1	116	45	2	2	49	165	\$41,248,000	\$29,230,000	\$13,918,000	\$10,336,000	\$2,120,000	\$96,852,000
Syracuse U.	95	4	26	125	93	3	12	108	233	\$29,479,434	\$15,695,735	\$24,483,323	\$8,203,372	\$10,385,901	\$88,247,764
CAT Program Totals	1,420	353	453	2,225	997	347	241	1,586	3,810	\$1,178,338,229	\$617,124,897	\$254,462,626	\$512,062,434	\$77,433,637	\$2,639,421,822

YEAR: 2014-15	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	62	6	24	92	29	1	20	50	142	\$101,537,269	\$1,783,450	\$2,050,070	\$3,390,000	\$851,315	\$109,612,104
Alfred U.	2	3	1	6	4	3	5	11	16	\$300,000	\$825,000	\$1,281,911	\$3,437,900	\$146,000	\$5,990,811
Binghamton U.	3	5	8	16	17	5	7	29	45	\$1,056,000	\$5,351,180	\$500,000	\$125,000	\$270,000	\$7,302,180
U. Buffalo	114	20	32	166	59	39	30	128	294	\$6,950,795	\$1,183,987	\$7,081,641	\$126,542,183	\$2,082,717	\$143,841,323
CUNY	15	8	3	26	21	4	3	28	54	\$1,107,350	\$4,631,654	\$1,970,000	\$7,936,600	\$395,500	\$16,041,104
Clarkson U.	4	1	2	7	25	2	0	27	34	\$10,236,385	\$2,500,000	\$90,000	\$1,915,000	\$909,310	\$15,650,695
Columbia U.	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0
Cornell U.	2	2	0	4	2	0	0	2	6	\$0	\$12,000	\$50,000	\$0	\$55,000	\$117,000
NYU Poly	78	0	3	81	0	0	0	0	81	\$0	\$270,000	\$0	\$50,400,000	\$0	\$50,670,000
Rensselaer (Auto.)	6	6	8	20	0	0	0	0	20	\$1,777,227	\$175,000	\$3,329,610	\$332,000	\$25,000	\$5,638,837
Rensselaer (Energy)	12	13	6	31	0	0	0	0	31	\$2,000,000	\$1,530,000	\$525,000	\$3,254,000	\$970,000	\$8,279,000
U. Rochester	7	3	7	17	13	5	8	26	43	\$22,548,794	\$1,989,100	\$1,782,331	\$6,268,389	\$263,421	\$32,852,035
Stony Br. (Bio)	39	1	3	43	21	0	0	21	64	\$4,328,349	\$385,052	\$4,454,368	\$16,146,136	\$489,062	\$25,802,967
Stony Br. (Sensor)	19	10	0	29	4	2	2	8	37	\$27,897,000	\$1,200,000	\$2,191,000	\$2,980,000	\$200,000	\$34,468,000
Syracuse U.	9	0	3	12	4	0	0	4	16	\$7,680,555	\$653,491	\$1,170,490	\$1,607,500	\$9,004,300	\$20,116,335
CAT Program Totals	372	78	100	549	199	61	75	334	882	\$187,419,723	\$22,489,914	\$26,476,421	\$224,334,708	\$15,661,625	\$476,382,391

YEAR: 2013-14	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	18	1	5	24	57	4	22	83	107	\$105,336,680	\$3,714,000	\$300,000	\$28,000	\$489,972	\$109,868,652
Alfred U.	2	4	1	7	18	3	3	24	31	\$53,389,240	\$8,432,957	\$489,300	\$800,000	\$280,000	\$63,391,497
Binghamton U.	5	2	0	7	0	0	0	0	7	\$1,142,000	\$6,022,949	\$0	\$481,100	\$115,000	\$7,761,049
U. Buffalo	43	5	17	65	72	69	30	171	235	\$3,915,038	\$657,300	\$5,700,588	\$55,843,609	\$1,984,844	\$68,101,379
CUNY	17	0	6	23	3	0	0	3	26	\$1,200,000	\$2,276,886	\$2,103,500	\$625,000	\$1,276,775	\$7,482,161
Clarkson U.	15	2	1	18	5	0	0	5	23	\$71,832,825	\$7,020,141	\$164,424	\$0	\$91,381	\$79,108,771
Columbia U.	19	0	4	23	2	0	3	5	28	\$3,350,000	\$69,131,943	\$5,511,834	\$26,311	\$185,000	\$78,205,088
Cornell U.	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0
NYU Poly	0	0	0	0	1	0	0	1	1	\$0	\$1,200,000	\$544,886	\$0	\$0	\$1,744,886
Rensselaer (Auto.)	0	0	0	0	0	0	0	0	0	\$0	\$0	\$0	\$0	\$0	\$0
Rensselaer (Energy)	15	6	5	26	1	0	0	1	27	\$840,000	\$749,830	\$2,150,000	\$4,780,000	\$300,000	\$8,819,830
U. Rochester	12	7	2	21	26	9	5	40	61	\$816,657	\$6,276,553	\$945,808	\$2,158,000	\$792,806	\$10,989,824
Stony Br. (Bio)	29	3	18	50	0	0	0	0	50	\$54,030,056	\$1,566,011	\$3,303,350	\$21,929,617	\$1,145,377	\$81,974,411
Stony Br. (Sensor)	8	15	0	23	6	0	0	6	29	\$5,857,000	\$685,000	\$1,127,000	\$3,420,000	\$250,000	\$11,339,000
Syracuse U.	17	0	6	23	7	0	2	9	32	\$4,411,002	\$2,051,908	\$2,676,734	\$177,000	\$215,000	\$9,531,644
CAT Program Totals	200	45	65	310	197	85	65	347	657	\$306,120,498	\$109,785,477	\$25,017,424	\$90,268,637	\$7,126,155	\$538,318,191

YEAR: 2012-13	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	36	17	91	144	0	0	0	0	144	\$153,471,000	\$6,425,000	\$2,145,107	\$355,000	\$1,325,000	\$163,721,107
Alfred U.	3	1	4	8	17	2	2	21	28	\$2,826,488	\$3,260,583	\$378,412	\$600,000	\$246,967	\$7,312,450
Binghamton U.	9	5	2	16	21	11	11	43	59	\$2,302,000	\$6,250,076	\$970,000	\$0	\$667,000	\$10,189,076
U. Buffalo	84	3	37	124	45	53	25	123	247	\$4,906,238	\$194,900	\$5,033,591	\$52,663,489	\$1,805,486	\$64,603,704
CUNY	10	3	1	13	20	3	3	26	39	\$2,868,000	\$4,137,400	\$4,304,513	\$1,620,000	\$545,000	\$13,474,913
Clarkson U.	5	15	3	23	0	0	0	0	23	\$10,313,000	\$4,065,000	\$420,000	\$1,500,000	\$1,700,000	\$17,998,000
Columbia U.	13	0	1	14	5	0	0	5	19	\$4,040,000	\$86,942,403	\$3,681,166	\$0	\$665,000	\$95,328,569
Cornell U.	0	0	0	0	0	0	0	0	0	\$0	\$60,000	\$267,714	\$0	\$50,000	\$377,714
NYU Poly	3	0	0	3	81	0	0	81	84	\$50,000	\$66,350,000	\$549,998	\$4,700,000	\$0	\$71,649,998
Rensselaer (Auto.)	15	10	1	26	4	0	0	4	30	\$6,299,163	\$672,500	\$3,532,503	\$1,568,000	\$171,831	\$12,243,997
Rensselaer (Energy)	12	0	0	12	0	0	0	0	12	\$500,000	\$446,576	\$500,000	\$2,500,000	\$28,000	\$3,974,576
U. Rochester	16	10	2	28	33	6	4	43	71	\$21,342,356	\$3,146,200	\$4,765,939	\$2,614,835	\$679,000	\$32,548,330
Stony Br. (Bio)	34	1	21	55	0	0	0	0	55	\$55,764,439	\$1,428,010	\$3,438,086	\$15,708,886	\$1,896,491	\$78,235,912
Stony Br. (Sensor)	17	7	1	24	11	0	0	11	35	\$3,870,000	\$1,795,000	\$2,563,000	\$664,000	\$300,000	\$9,192,000
Syracuse U.	14	0	3	17	31	1	2	34	51	\$6,812,982	\$3,740,774	\$4,392,653	\$527,500	\$500,000	\$15,973,909
CAT Program Totals	270	72	165	506	268	76	46	390	896	\$275,365,666	\$188,914,422	\$36,942,682	\$85,021,710	\$10,579,775	\$596,824,255

YEAR: 2011-12	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	72	37	32	141	40	10	14	64	204	\$179,034,500	\$1,400,380	\$2,257,500	\$1,805,350	\$8,376,900	\$192,874,630
Alfred U.	3	2	2	7	14	3	4	21	28	\$3,003,217	\$2,797,000	\$395,000	\$2,475,600	\$290,000	\$8,960,817
Binghamton U.	5	7	3	15	15	26	3	44	59	\$2,736,000	\$4,796,350	\$250,000	\$0	\$335,000	\$8,117,350
U. Buffalo	9	15	4	28	12	0	1	13	41	\$2,357,473	\$16,331,595	\$8,843,489	\$722,589	\$127,639	\$28,382,785
CUNY	14	7	6	27	11	0	4	15	42	\$10,822,000	\$4,666,100	\$907,500	\$1,496,000	\$550,000	\$18,441,600
Clarkson U.	8	0	0	8	0	0	0	0	8	\$26,763,104	\$5,567,000	\$1,500,000	\$2,230,000	\$0	\$36,060,104
Columbia U.	17	0	0	17	24	0	0	24	41	\$4,113,939	\$3,111,235	\$6,855,273	\$0	\$6,000	\$14,086,447
Cornell U.	4	0	0	4	0	0	0	0	4	\$0	\$60,000	\$1,309,693	\$127,500	\$245,700	\$1,742,893
NYU Poly	24	0	0	24	0	0	0	0	24	\$361,000	\$66,380,000	\$866,984	\$12,000,000	\$0	\$79,607,984
Rensselaer (Auto.)	38	6	1	45	0	0	0	0	45	\$28,687,277	\$133,316	\$15,165,536	\$217,700	\$1,205,745	\$45,409,574
Rensselaer (Energy)	18	0	1	19	1	0	0	1	20	\$285,157	\$458,860	\$1,733,503	\$2,320,000	\$35,000	\$4,832,520
U. Rochester	5	1	3	8	18	14	2	34	41	\$7,493,412	\$3,444,000	\$1,107,974	\$2,932,167	\$176,000	\$15,153,553
Stony Br. (Bio)	16	1	4	21	0	0	0	0	21	\$16,356,048	\$316,135	\$10,664,166	\$362,048	\$2,142,782	\$29,841,178
Stony Br. (Sensor)	19	8	0	26	14	0	0	14	40	\$2,237,000	\$2,110,000	\$2,648,000	\$2,267,000	\$400,000	\$9,662,000
Syracuse U.	21	2	5	28	19	0	2	21	49	\$8,060,671	\$4,489,492	\$6,766,490	\$515,875	\$142,219	\$19,974,747
CAT Program Totals	272	85	60	417	167	53	30	250	667	\$292,310,798	\$116,061,463	\$61,271,108	\$29,471,829	\$14,032,985	\$513,148,182

YEAR: 2010-11	New Jobs				Retained Jobs				Total Jobs	Non-Job Impacts					
	Prof.	Mfg.	Supp.	Total New	Prof.	Mfg.	Supp.	Total Ret.		Increased Revenues	Cost Savings	Govt Funds Acq'd	Non-Govt Funds Acq'd	Capital Improv's	Total Non-job
SUNY Poly	24	0	0	24	33	0	0	33	57	\$150,000	\$6,263,100	\$4,889,000	\$390,000	\$10,000,000	\$21,692,100
Alfred U.	2	1	3	6	11	2	5	18	24	\$3,045,000	\$4,099,570	\$1,635,000	\$1,062,000	\$967,000	\$10,808,570
Binghamton U.	30	17	10	57	13	66	5	84	141	\$3,115,000	\$4,447,813	\$120,000	\$21,100,000	\$1,241,841	\$30,024,654
U. Buffalo	31	1	9	41	2	0	1	3	44	\$5,448,879	\$1,002,598	\$4,714,608	\$11,214,901	\$800,369	\$23,181,355
CUNY	14	7	5	26	23	0	6	29	54	\$10,807,000	\$5,549,000	\$1,347,000	\$2,905,100	\$1,800,000	\$22,408,100
Clarkson U.	18	25	0	43	1	0	0	1	44	\$19,167,884	\$17,368,000	\$0	\$0	\$2,600,000	\$39,135,884
Columbia U.	39	0	0	39	0	0	0	0	39	\$13,186,483	\$41,220,000	\$35,110,290	\$0	\$628,000	\$90,144,773
Cornell U.	1	0	0	1	0	0	0	0	1	\$228,000	\$11,000	\$227,000	\$895,000	\$52,000	\$1,413,000
NYU Poly	23	0	0	23	0	0	0	0	23	\$145,000	\$66,580,000	\$0	\$0	\$0	\$66,725,000
Rensselaer (Auto.)	32	3	1	36	3	0	0	3	39	\$31,688,574	\$284,616	\$28,655,979	\$4,943,000	\$626,000	\$66,198,169
Rensselaer (Energy)	25	8	12	45	0	0	0	0	45	\$22,920	\$30,000	\$50,000	\$21,950,000	\$1,071,841	\$23,124,761
U. Rochester	13	5	8	26	38	3	3	44	70	\$9,287,081	\$3,842,000	\$9,463,792	\$1,758,154	\$5,791,664	\$30,142,691
Stony Br. (Bio)	13	0	6	19	0	0	0	0	19	\$16,928,499	\$975,854	\$3,676,366	\$10,366,898	\$2,960,000	\$34,907,617
Stony Br. (Sensor)	9	5	0	14	10	0	0	10	24	\$1,387,000	\$23,440,000	\$5,389,000	\$1,005,000	\$970,000	\$32,191,000
Syracuse U.	34	2	9	45	32	2	6	40	85	\$2,514,224	\$4,760,070	\$9,476,956	\$5,375,497	\$524,382	\$22,651,129
CAT Program Totals	307	74	63	443	166	73	26	265	708	\$117,121,544	\$179,873,621	\$104,754,991	\$82,965,550	\$30,033,097	\$514,748,803

Centers of Excellence

The impacts presented below are for the ten Centers of Excellence that held contracts through the 2014-15 contract year:

- Center of Excellence in Bioinformatics and Life Sciences (CBLS) at the University at Buffalo;
- Smart System Technology & Commercialization Center (STC) at SUNY Polytechnic Institute;
- Center of Excellence in Environmental and Energy Systems at Syracuse University (SyracuseCoE);
- Center of Excellence in Nanoelectronics and Nanotechnology (CENN) at SUNY Polytechnic Institute (formerly at University at Albany);
- Center of Excellence in Wireless and Information Technology (CEWIT) at Stony Brook University;
- Small Scale Systems Integration and Packaging Center (S3IP) at Binghamton University;
- Advanced Energy Research and Technology Center (AERTC) at Stony Brook University;
- Center of Excellence in Materials Informatics (CMI) at the University at Buffalo;
- Center of Excellence in Advanced & Sustainable Manufacturing (COE-ASM) at Rochester Institute of Technology; and
- Center of Excellence in Data Science at the University of Rochester.

In the impact tables, these centers are identified by the university holding the contract.

FIVE YEAR TOTALS (2010/11 - 2014/15)	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	266	381	647	\$255,283,462
SUNY Poly (STC) (2010)	52	69	121	\$0
Syracuse (2010)	82	209	291	\$34,473,948
SUNY Poly (CENN) (2010)	2,168	14,009	16,177	\$1,631,732,955
Stony Brook (CEWIT) (2010)	329	109	438	\$52,163,656
Binghamton U. (2010)	158	413	571	\$186,412,916
Stony Brook (Energy) (2012)	26	105	131	\$47,074,821
U. Buffalo (Materials) (2013)	136	111	247	\$37,432,703
RIT (2013)	11	16	27	\$7,503,069
U. Rochester (2014)				
COE Program Totals	3,228	15,422	18,649	\$2,252,077,530

Year: 2014-15	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	135	136	271	\$140,568,609
SUNY Poly (STC) (2010)	0	0	0	\$0
Syracuse (2010)	6	42	48	\$3,574,857
SUNY Poly (CENN) (2010)	508	3,850	4,358	\$413,136,204
Stony Brook (CEWIT) (2010)	122	68	190	\$15,913,546
Binghamton U. (2010)	22	74	96	\$36,390,180
Stony Brook (Energy) (2012)	18	69	87	\$20,812,990
U. Buffalo (Materials) (2013)	80	47	127	\$21,537,544
RIT (2013)	6	16	22	\$1,666,936
U. Rochester (2014)				
COE Program Totals	897	4,302	5,199	\$653,600,866

Year: 2013-14	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	33	133	166	\$56,876,765
SUNY Poly (STC) (2010)	0	0	0	\$0
Syracuse (2010)	17	12	29	\$1,956,605
SUNY Poly (CENN) (2010)	745	2,949	3,694	\$324,780,522
Stony Brook (CEWIT) (2010)	87	19	106	\$16,057,884
Binghamton U. (2010)	7	36	43	\$19,826,356
Stony Brook (Energy) (2012)	3	0	3	\$15,031,290
U. Buffalo (Materials) (2013)	26	52	78	\$9,199,436
RIT (2013)	5	0	5	\$5,836,133
U. Rochester (2014)				
COE Program Totals	922	3,201	4,123	\$449,564,991

Year: 2012-13	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	99	112	211	\$57,838,088
SUNY Poly (STC) (2010)	47	0	47	\$0
Syracuse (2010)	22	84	106	\$7,265,820
SUNY Poly (CENN) (2010)	75	2,874	2,949	\$311,876,627
Stony Brook (CEWIT) (2010)	120	22	142	\$20,192,226
Binghamton U. (2010)	16	60	76	\$21,989,076
Stony Brook (Energy) (2012)	5	36	41	\$11,230,541
U. Buffalo (Materials) (2013)	31	12	43	\$6,695,723
RIT (2013)				
U. Rochester (2014)				
COE Program Totals	414	3,200	3,614	\$437,088,101

Year: 2011-12	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	0	0	0	\$0
SUNY Poly (STC) (2010)	0	0	0	\$0
Syracuse (2010)	28	60	88	\$16,375,099
SUNY Poly (CENN) (2010)	572	2,302	2,874	\$389,944,558
Stony Brook (CEWIT) (2010)	0	0	0	\$0
Binghamton U. (2010)	57	126	183	\$48,580,374
Stony Brook (Energy) (2012)				
U. Buffalo (Materials) (2013)				
RIT (2013)				
U. Rochester (2014)				
COE Program Totals	657	2,488	3,145	\$454,900,031

Year: 2010-11	New Jobs	Retained Jobs	Total Jobs	Total Non-Job Impacts
U. Buffalo (Bio) (2010)	0	0	0	\$0
SUNY Poly (STC) (2010)	5	69	74	\$0
Syracuse (2010)	9	11	20	\$5,301,567
SUNY Poly (CENN) (2010)	268	2,034	2,302	\$191,995,044
Stony Brook (CEWIT) (2010)	0	0	0	\$0
Binghamton U. (2010)	56	117	173	\$59,626,930
Stony Brook (Energy) (2012)				
U. Buffalo (Materials) (2013)				
RIT (2013)				
U. Rochester (2014)				
COE Program Totals	338	2,231	2,569	\$256,923,541

Purposes for which center facilities and personnel were utilized

COE facilities and personnel were utilized and leveraged in a collaboration between the academic research community and private industry for purposes of commercializing new products and technologies; promoting critical private sector investment in emerging high technology fields in New York State; and enhancing and accelerating joint university-industry research and development, product and commercialization, and workforce training.

Governance Structure of COEs

All COEs are research centers situated within research universities. Each CEO has a director responsible for developing and leading the implementation of a strategic and commercialization plan focused on its designated technological focus. Each COE engages an industrial advisory board comprised of collaborative industrial partners with a stake in that technology area and a technical advisory board comprised of academicians and researchers from institutions of higher education. These boards serve to identify potential technology development and project opportunities aligned with the needs of industry and the capabilities and expertise of the COE.

Awards, Designations, Etc.

The COEs are regularly acknowledged for their research excellence and technological expertise and capabilities through various awards, designations, and other forms of recognition. As examples:

- SUNY Polytechnic Institute’s Smart System Technology & Commercialization Center (STC) in Canandaigua received its Trusted Foundry accreditation for the Defense MicroElectronics Activity to cover “Aggregation Services,” which allows the Center to work with a government or federal prime contractor customer to design and manage a Trusted project work plan from design, to fabrication, packaging and test.
- Rochester Institute of Technology’s (RIT) Center of Excellence in Advanced & Sustainable Manufacturing opened its Digital Manufacturing and Product Realization laboratory. In addition to supporting the COE’s activities, this lab reflects and enhances RIT’s leadership role in the federally funded Digital Manufacturing and Design Innovation Institute (DMDII), part of the Manufacturing USA network.
- The Small Scale Systems Integration and Packaging Center (S3IP) at Binghamton University received National Science Foundation designation as an Industry/University Cooperative Research Center in the area of energy-efficient electronic systems; opened the Center’s Nanofabrication Laboratory; and recently was part of the applicant team that received a \$75 million U.S. Department of Defense designation as the Manufacturing USA institute dedicated to flexible hybrid electronics (NextFlex).

COE Program Strategy

Throughout its programs and initiatives, NYSTAR is placing greater priority on commercialization. Each COE is required to maintain a commercialization plan. NYSTAR will continue working with the COEs to implement these plans and to assist their commercialization efforts in a coordinated, statewide fashion. NYSTAR is relatedly working to further align the COE program with the Centers for Advanced Technology program, that is, emphasizing applied research and a mission of working directly with industry to address companies’ technology innovation and adoption challenges.

Innovation Hot Spots & Certified Business Incubators

The impacts presented below are for the most recent contract year available, 2014-15. The only centers reporting for that period are those that were designed in Consolidated Funding Application Round III.

YEAR: 2014-15	Total New Jobs	Total Retained Jobs	Total Non-Job Impacts	Number of Companies Assisted	Number of Companies Graduated
Western New York Innovation Hot Spot	0	55	\$1,390,180	16	3
North Country Innovation Hot Spot	27	12	\$2,989,125	76	10
Southern Tier Innovation Hot Spot	0	0	\$0	29	1
Central New York Innovation Hot Spot	11	59	\$4,903,294	16	2
Finger Lakes Innovation Hot Spot	0	0	\$0	23	7
NYS Clean Tech Certified Business Incubator	8	12	\$534,000	8	0
Cornell Food Innovation NYS Certified Business Incubator	6	0	\$7,277,600	7	0
Tech Valley NYS Certified Business Incubator	5	1	\$701,120	3	0
The Accelerator Powered by the Orange County IDA	12	16	\$1,781,228	4	0
Mohawk Valley NYS Certified Business Incubator	14	6	\$1,335,000	9	0
Rensselaer Polytechnic Institute NYS Certified Business Incubator	0	0	\$0	0	0
Brooklyn Biotech NYS Certified Business Incubator	27	80	\$12,943,355	15	5
NYU Tandon School of Engineering Certified Incubator	51	0	\$111,700,000	0	16
Stony Brook University NYS Certified Business Incubator	124	243	\$31,759,569	83	2
Program Totals	285	484	\$177,314,471	289	46

APPENDIX 2: ADDITIONAL REPORTING

Qualitative Impacts

Outreach to Surrounding Communities

Centers supported by NYSTAR programs are actively engaged in their local and regional economic development and innovation communities. They frequently partner with industry associations, local governments, entrepreneurial support organizations, technology-based interest groups, workforce development entities, and chambers of commerce, often on events or activities designed to increase their reach into target industries and ensure that their programs are complementary to others in the area. For example, NY MEP subrecipients hold well over 50 such collaborative events per year targeting manufacturers. Many centers are engaged in their respective Regional Economic Development Councils as Council or work group members in order to help shape and respond to economic opportunities in a collaborative, cross-sector fashion. Innovation Hot Spots and Certified Business Incubators typically have strong relationships with area investors, mentors, and entrepreneurs.

Relationships with K-12 Schools and Community Colleges

NYSTAR-supported organizations are frequent participants in workforce development efforts at the local and regional level, usually with a focus on STEM careers. For example:

- Many NY MEP regional centers were involved in a soon-to-conclude three-year federal Trade Adjustment Assistance Community College & Career Training grant to improve manufacturing-related program offerings at community colleges throughout the SUNY system;
- Many NY MEP regional centers are active in organizing annual Manufacturing Day events that bring students into manufacturing and technology facilities for tours, with the goal of fostering interest in STEM and manufacturing careers;
- The Center for Economic Growth, through its Workforce Development & Education Initiative, has facilitated business-education partners, promotes awareness of STEM and manufacturing careers, promoted Manufacturing Day plant tours, and served as a business intermediary for the region's Workforce Investment Boards. CEG is also a regional hub of the SUNY Empire State STEM Learning Network, an initiative to expand access to high-quality STEM teaching, increase the number of students in STEM disciplines who graduate prepared for 21st century careers, and communicate and advocate for STEM policies and partnerships;
- High Tech Rochester plays an advisory role to the Finger Lakes Advanced Manufacturers' Enterprise to promote job-driven, manufacturing-focused educational initiatives in K-12 schools;

- Insyte Consulting is a participant in Western New York’s “Dream It! Do It!” campaign in conjunction with the National Association of Manufacturers; and
- NYSTAR-funded centers are well represented on community colleges’ technical advisory committees.

Invention, Development, or Refinement of New Products and Processes with Commercial Application

The NYSTAR programs most directly involved in product/process invention, development, and refinement are the Centers for Advanced Technology, Centers of Excellence, and Innovation Hot Spots and Certified Business Incubators. CATs’ and COEs’ mandate is to work with private industry in the development and application of new technologies, and the job growth, job retention, and non-job economic impact metrics they report are generated by the success of new products and processes at client companies. Hot Spots and Incubators guide and support young companies through the development and refinement of the technologies and products they seek to bring to market; and important example of such activities is the New York City Innovation Hot Spot’s role as an I-Corps Node, a National Science Foundation program that assists innovators with identifying markets and tailoring their new products and processes to market needs. The High Performance Computing Consortium’s services are also utilized for product and process development and refinement.

Terms of Research Sponsorship Agreements

The terms of NYSTAR-supported centers’ research sponsorship agreements with client companies vary from center to center, and are often determined by the policies of their parent institutions. Notably, the SUNY system is revising its patent policy in 2016, which will affect the SUNY-affiliated centers and better enable private industry to contract research to them.

Fields of Technology with Significant Potential

NYSTAR reviews industry and technological developments to identify areas of strategic importance, for example based on industry growth expectations or relevance to the competitiveness of existing industries in the state. Currently, fields of interest include but are not limited to:

- The intersection of big data and medicine, especially pertaining to pharmaceuticals, medical devices, and diagnostics;
- Medical manufacturing, including advances in pharmaceutical production, medical device development, and biomanufacturing;
- Advanced materials tailored for unique properties and applications. Nanomaterials in particular stand out for their potential for broad applications, fast-paced development, and economic impact;
- Internet of Things as it pertains to software development, cybersecurity, manufacturing processes, manufacturing, smart communities, and consumer products; and

- Autonomous vehicles including UAVs and their commercial applications.

As NYSTAR identifies technologies of strategic importance, these may be reflected in future competitions to designate new Centers for Advanced Technology (as was the case recently in NYSTAR's CAT designation for the Additive Manufacturing and Multifunctional Printing [AMPrint] Center at Rochester Institute of Technology) or as focuses of other efforts related to commercialization and innovation.

APPENDIX 3: METHODOLOGY

General methodology

“New jobs” refers to permanent, full-time positions created in the course of business expansion resulting from the NYSTAR program’s efforts.

“Retained jobs” are those that may be at risk when companies consider relocation because of high operating costs, incentives offered by another location, or production contractions. If a company credibly substantiates that jobs were at risk and that collaboration with the NYSTAR-supported center was a significant reason for their retention, those jobs are counted as retained. That substantiation must include documentation comparing operating costs vis-à-vis another location and specific offers or incentives for relocation.

“Economic impact” or “non-job impact” refers to the following impacts reported by companies served by CATs, COEs, Innovation Hot Spots, Certified Business Incubators, and the High Performance Computing Consortium. Note that it does not reflect any increase in paid wages or the multiplier effects of these impacts, and therefore understates total cumulative changes in employment, earnings, and output in New York State attributable to the efforts of these programs.

- **Increased company revenues.** NYSTAR-supported assets frequently collaborate in new product development or existing product improvement that directly increases client revenues. In extraordinary circumstances, NYSTAR may credit impact for retained sales. In these cases, company documentation must clearly state that due to the center’s work, the company was able to retain a specific customer that it would have otherwise lost (e.g. due to quality control problems).
- **Cost savings realized by the company.** Cost savings that typically accrue from a company’s collaboration with a NYSTAR-supported center are production process improvements, the value of accessing specialized equipment, expertise, or analytical testing, and other research savings. When savings are reported because the center is providing services such as access to specialized equipment, analytical testing, or research expertise that otherwise would have to be done by the company in-house, the appropriate level of credit is not the total amount the research would have cost the company in-house, but the difference between this cost and the amount contributed by the company.
- **Funds acquired by the company.** These include any non-New York State sources of funds. They may include non-NYS government funds, for example federal sources like the Small Business Innovation Research program. They may also include venture capital and other business investments. There must be a demonstration that the NYSTAR-supported center played a substantive role in helping the company obtain the funds.

- **Capital expenditures by the company.** This includes infrastructure improvements, purchases of new capital equipment, and construction. Company documentation must specify that the NYSTAR-supported center played a substantive role in leading the company to make these investments.

NYSTAR follows documented economic impact review procedures. For most programs, impacts reported to and credited by NYSTAR meet the following conditions:

- Occurred during the current year and not previously credited to that center;
- Actual impact rather than projected;
- Occurred within and benefited a company within New York State;
- Resulted from collaboration with a NYSTAR-funded center; and
- Documented with a company letter of attestation and other substantiating materials as noted above.

Larger reported impacts are subjected to greater scrutiny by NYSTAR and at times require confirmation from a third party. NYSTAR follows a threshold formula for determining the necessary level of evaluation.

Program-specific notes

The NY MEP program is evaluated by its federal funder, the National Institute of Standards and Technology (NIST), and a third party evaluator engaged by NIST. In some cases, impact definitions vary slightly from those provided above.

In general, any data provided for the “number of companies served” by a particular center will understate the number of companies touched by a particular center. This is especially true in the case of NY MEP, which reaches a substantially greater number of companies through non-project activities (events, some workshops) that are not subject to impact measurement.