



NEW YORK STATE GREEN JOBS STUDY

KEY FINDINGS FOR NEW YORK CITY

NOVEMBER 2011

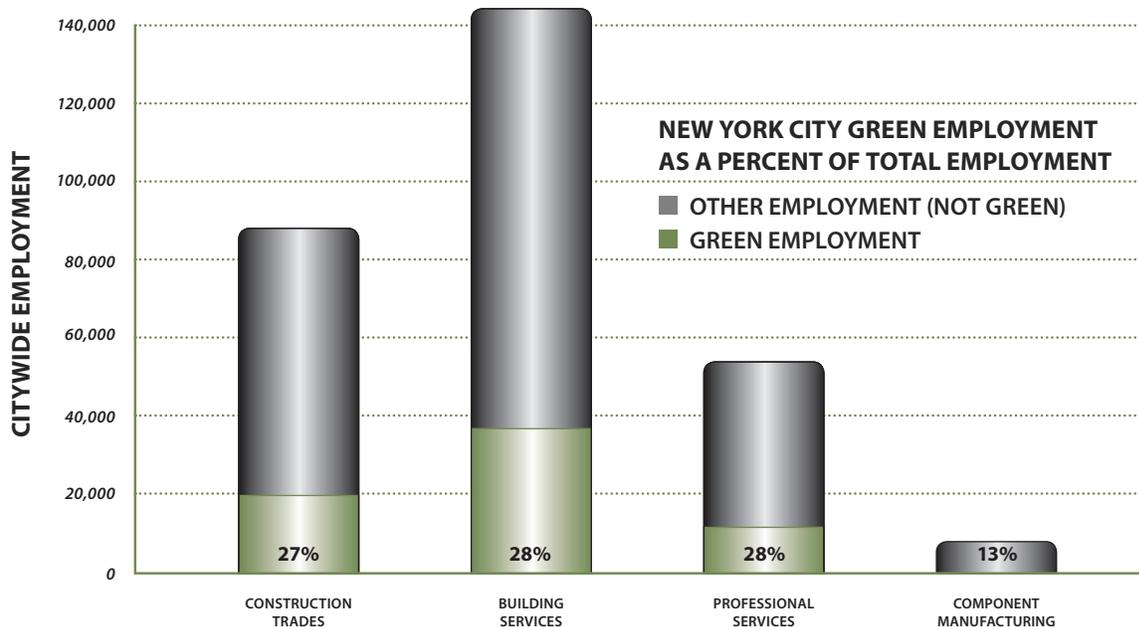


Where are New York City's green jobs and what training and skills do people need?

New York City and State are acknowledged leaders in the green economy. New York City placed third of the 27 cities included in Siemens' 2011 U.S. and Canada Green Cities Index.¹ The American Council for an Energy-Efficient Economy ranked New York State third in its 2011 State Energy Efficiency Scorecard.²

Labor market observers have many questions, such as “What effect is the greening of the local economy having on the workforce? Are there new green jobs, and if so, what are they? Are there changing skill demands for existing jobs, and if so, what are these? Is it true that the green economy offers opportunities for moderately low-skilled workers? Or do many jobs in the green economy require work experience or sophisticated skills?”

The New York City Labor Market Information Service (NYCLMIS) has been studying these questions as part of a larger New York State Green Jobs Study.* Concentrating primarily on industry clusters involved with the built environment that is so much a part of New York City,



- 1 US and Canada Green City Index, a research project conducted by the Economist Intelligence Unit, sponsored by Siemens, June 30, 2011, available at www.siemens.com/greencityindex
- 2 American Council for an Energy-Efficient Economy, The 2011 State Energy Efficiency Scorecard, October 2011, available at www.aceee.org



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the study examined how these industry clusters are involved in increasing energy efficiency and the use of renewable energy sources. The study delved into what drives green economic activity in these clusters, the impact on occupations and work requirements, and identified the implications of these impacts for education and training providers. The goal of the study was to get the facts about green employment. The results may encourage some and discourage others. Here are the key findings for New York City:

1. **The green economy is very real.** New York City employers in the key industry clusters of construction, building services and professional services reported that more than one in four employees work in green jobs. These are noteworthy proportions. Component manufacturing, which was also studied, is both much smaller and less green than the other three.

How was “green” defined in this study?

While the green economy touches nearly every sector of the economy, including transportation, environmental remediation, waste removal, agriculture and many others, this green jobs research focused on two spheres of green economic activity: Energy Efficiency and Renewable Energy. Within this area of interest, the following definitions were used:

- **Green economic activities** produce goods or deliver services that increase energy efficiency or generate renewable energy.
- **Green employers** are engaged in a targeted green economic activity, such as retrofitting buildings or generating power from wind energy.
- **Green employees** are primarily engaged in producing green products or delivering green services, such as photovoltaic installers, insulation workers, or energy auditors.

For Building Services, green was defined somewhat differently, as helping buildings and facilities achieve greater energy efficiency, use new energy technologies, or achieve other environmental sustainability goals. For this cluster, people engaged in recycling and green cleaning were counted as green employees.



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Highlights of findings for each industry cluster:

Construction (commercial and residential construction, electric power construction):

- Within the last ten years or so, there has been significant movement in the direction of green practices throughout the construction industry, especially in large buildings and high-end commercial spaces. In New York City, more than one in five firms report having green employees.
- New York City's largest commercial construction firms say that energy efficient and sustainably designed construction is firmly in place, and not a trend waiting to happen at some time in the future. It is being driven both by customer preference and leadership from the public sector, through regulation and role modeling. Virtually all Class A commercial office space and new major publicly financed construction projects are being built to sustainable standards. There is movement toward green construction in the residential sector as well, particularly in low-income and affordable housing developments where public subsidies are involved, and in energy efficiency remodeling of existing low-income residences.
- The top green occupations reported by New York City employers, which together account for more than half of the City's green jobs in construction were jobs like plumbers, pipefitters and steamfitters; electricians; heating/air conditioning mechanics and installers; construction managers; and first-line supervisors of construction workers. These traditional jobs have added new skills related to sustainable construction.
- The green occupations for which New York City employers have had the most difficulty finding qualified employees are construction managers, cost estimators and sales representatives.
- Although demand for green construction has suffered during the recession along with the sector in general, the construction industry has continued to move toward green building even as the recession has persisted.
- A number of training and education programs are helping to teach new skills needed for green construction to existing construction workers and professionals. One example of this is the Urban Green Council's G-PRO program, developed in cooperation with a number of labor unions, targeted to construction and building services workers.



NEW YORK STATE GREEN JOBS STUDY

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Building Services (large segments of the real estate industry and services to buildings):

- This industry's greening trend is most pronounced in high-end commercial office and large residential buildings, where tenants increasingly demand sustainable and energy efficient spaces.
- Property owners and managers are recognizing the importance of integrating sustainability into their normal operating practices as a means of decreasing operating costs and protecting the environment. The owners of large buildings recognize the long-term cost savings possible with high-tech systems, and are therefore willing to invest in large-scale automation of heating, cooling, lighting, and other buildings systems. There has been rapid growth in the use of advanced Building Management Systems or Energy Management Systems.
- The most common green occupations reported by employers, which together account for more than 80 percent of employment in this cluster, are janitors/cleaners/porters, supervisors of building and grounds workers, general maintenance and repair workers, and stationary engineers and boiler operators.
- Industry employers report that some of their most critical green employees are those who operate heating and cooling systems, as well as professionals in new energy and sustainable services departments. These professionals might include engineers and architects as well as people who procure energy and those who handle retro-commissioning. New and emerging green job titles include: energy manager, commissioning/retro-commissioning agent, energy auditor and global head of sustainability.
- Many large-scale efforts are underway to train existing workers in how to operate and maintain their buildings in a more energy efficient way. Examples include the Thomas Shortman Fund's 1000 Supers Program and the CUNY Institute for Urban Systems Building Performance Lab training for Operating Engineers and New York City Public School Custodians.

Professional Services (architecture, engineering, consulting, IT):

- This is the greenest industry cluster in New York City, with one-third of firms reporting green employment, and 28 percent of the workforce engaged in green jobs.
- The demand for sustainable design has been driven by commercial customers, and more, recently from colleges and universities, healthcare facilities and non-profit organizations, many of whom have embraced high levels of sustainability as part of their mission.



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- New York City laws and guidelines related to construction and building operations have also increased the demand for green professional services such as architecture, engineering and information systems.
- The top green job in this industry cluster by far was architect, with 47 percent of the total green employment in the cluster. Architects interviewed for the study reported that the industry has moved dramatically in the direction of sustainability within the last five years. Other jobs with green employment in New York City are mechanical engineer, drafter, civil engineer, electrical engineer, interior designer and landscape architect. All of these occupations are involved in designing sustainable buildings or providing consulting services that facilitate energy efficiency or use of renewable energy by clients.
- Nine in ten employers with green employment require enhanced skills for green jobs, and 74 percent prefer that green employees have a Leadership in Energy and Environmental Design (LEED) credential.

Component manufacturing (components of energy efficiency and renewable energy, such as heating and energy storage systems):

- This is the smallest of the industry clusters included in the green jobs study and has the least green employment. While green component manufacturing employment in New York City is modest, it represents 13 percent of employment in the cluster, almost twice the statewide rate of 7 percent.
 - Almost all green manufacturers say that their green employees require additional training to perform their jobs, and 24 percent of employers prefer that their green employees have a LEED credential.
 - The New York Industrial Retention Network has made efforts to connect New York City's green manufacturers to the City's green construction industry.
 - The Brooklyn Navy Yard is working to be the destination of choice for green manufacturers and businesses and has is taking an approach to be a national model for sustainable industrial parks.
2. **The studied industry clusters are greening from within.** This transformation involves retraining of the existing workforce in the skills, knowledge and techniques of energy efficiency, green construction and green building design. A significant number of companies that already have green employment expect to have more green employment a year later. The proportions ranged from 22% of Building Services companies to 39% of Professional Services firms. This does not necessarily mean that they will be hiring additional workers



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although in some cases, that may be so. There may be limited net new green job creation, at least in the short run due to the slow recovery following the recent recession.

- 3. The City's green economy is embedded within the general economy and is therefore influenced by its condition and its impact on overall customer demand.** For example, the construction industry in New York City still has not recovered from its downturn, and there is substantial unemployment of construction workers. In addition, the inability of property owners to access traditional sources of financing has dampened activity in general as well as in the energy efficiency upgrade market. The recently enacted State law allowing on-bill financing for energy efficiency retrofits has the potential to expand the residential market.
- 4. Investments in energy efficiency upgrades depend on proof of savings and benefits that can be realized.** There are many efforts underway to prove the cost-benefit of energy efficient investments and practices. One high profile example is the \$100 million energy sustainability retrofit of the Empire State Building, which is aiming to achieve a 38 percent reduction in energy usage.³ Another is the Deutsche Bank Americas Foundation-Living Cities study of nearly 19,000 affordable housing units in New York City that underwent energy efficiency retrofits. Preliminary results of this study indicate that these retrofits results in a 19 percent savings on fuel bills and a 10 percent savings on electricity across the 19,000 units studied.⁴
- 5. There is important green-related technological innovation within some sectors studied.** Sophisticated building management systems and energy information portals are becoming more common among real estate companies and larger buildings. This movement has been described as a "convergence of IT, telecommunications and energy data management, meeting a world with a need for lower carbon footprints and higher energy efficiency standards."
- 6. Many community colleges and non-profit organizations are offering green related training, often in collaborative relationships that take advantage of each organization's particular expertise.** For example, the Consortium for Worker Education, along with service partners SoBRO, Sustainable South Bronx, the Osborne Association, the Association for Energy Affordability and Nontraditional Employment for Women, is operating the Center for Environmental Workforce Training to recruit, train and identify employment opportunities for Bronx residents in city-wide emerging green industries and transitioning sectors. SolarOne works with the Community Environmental Center, STRIVE and others in delivering education programs. While many non-profit organizations are involved in

³ www.esbnyc.com/sustainability_energy_efficiency.asp

⁴ *Study Clarifies the Energy Savings in Retrofitted Buildings*, The New York Times, November 9, 2011



NEW YORK STATE GREEN JOBS STUDY

KEY FINDINGS FOR NEW YORK CITY

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green training, community colleges and universities offer the majority of green programs and courses. The City University of New York employs a Director of Green Education and Training Programs to work with 24 CUNY campuses.

7. **It appears that the biggest drivers of the greening of the industry clusters studied are leadership from the public sector and demand from customers.** Public sector leadership includes federal, state and city policies and laws, and utility programs. The New York State Energy Research and Development Authority (NYSERDA) plays a vital role in stimulating and guiding the green economy in New York State. Significant green-related customer demand drives the market for professional services, construction, building services, and, to some extent, manufacturing. However, firms complain that green economic activity is sometimes inhibited by the bureaucratic requirements and practices of some regulatory agencies.
8. **Employers are clear on their advice to education and training providers.** They want:
 - More hands-on education and more experience for students in the work world—whether through co-op programs, internships or similar approaches.
 - Cross-functional training, i.e. sales/communication/teamwork/interpersonal skills along with technical training; more interdisciplinary work between architects and engineers.
 - Quality training and the right match of the person for the job. In the “mad rush” to get people trained, sometimes the quality of training can suffer, people may be enrolled who cannot benefit fully from the training, and trainees might not be fully prepared with the skills needed for the job.



NEW YORK STATE GREEN JOBS STUDY

KEY FINDINGS FOR NEW YORK CITY

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***About the Green Jobs Research in New York State**

This brief is part of a larger study conducted by the New York State Department of Labor in collaboration with three research partners—the New York City Labor Market Information Service (NYCLMIS) at the CUNY Graduate Center, the Advanced Energy Center (AEC) at Stony Brook University and the Energy and Environmental Technical Applications Center (E2TAC) at the University at Albany. The full technical report, occupational spotlights and other materials from the study are available on the NYCLMIS website.

In keeping with the priorities of New York State’s Energy Plan, the Green Jobs Study focused on the industry clusters that are most involved in energy efficiency and renewable energy: Construction, Building Services, Professional Services and Manufacturing.

The New York City portion of the study included a direct employer survey of more than 8,000 businesses in New York City with a response rate of 37%, interviews with industry experts and leaders, nine focus groups with leading-edge firms, the identification of education and training programs that prepare the workforce for green jobs, and two focus groups with providers of green training and education. The employer survey was sent to every firm in the selected industries with 26 or more employees, and a 20% sample of those with 25 or fewer. These findings can be used by firms, education and training providers, and policy-makers seeking to further understand and operate strategically within the green economy.

The full report is available at www.urbanresearch.org.

For further information, contact Lesley Hirsch, lhirsch@gc.cuny.edu or Ronnie Kauder, rkauder@gc.cuny.edu or visit the New York State Department of Labor’s website, www.greencareersny.org.