

Green Job Creation Potential in New York City's Manufacturing Sector

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Table of Contents

Executive Summary & Recommendations	4
Introduction	7
New York State Green Jobs Study	9
Sector Profile.....	11
Existing Workforce	11
Customer Type.....	12
Sales Trends.....	13
Companies Engaging in Sustainable Business Practices	14
Tenure and Energy Conservation.....	14
Green Product Development	15
Sustainability Marketing and Sales	16
Business Challenges	17
Workforce Development and Skills Training.....	19
Business Assistance Infrastructure	19
Job Placement	19
Job Training- General.....	21
Job Training- Green.....	21
Conclusion	23

Executive Summary

The New York City manufacturing sector continues to be a vital component of the city's economic base. It is a particularly important source of employment and entrepreneurial opportunity for minority residents and immigrants. The sector is extraordinarily diverse, but has significant concentrations in apparel, food, wood and metal working, and building materials. While diverse, many manufacturing firms share a business strategy: provide high-value added products as opposed to competing on price. Adopting sustainable business practices contributes to high value just like higher quality, more sophisticated design or timely responsiveness to consumer demands.

As overall awareness of the need to reduce carbon emissions and hazardous materials has increased, the demand for green products has grown. Manufacturers are responding to growing consumer demand by adapting their product lines or developing new goods and services to be sold in the green economy. New York City is home to over 100 industrial firms which have incorporated sustainable business practices into their products and operations.

There is a particular opportunity to expand and create jobs in the building products sub-sector, including products that promote energy efficiency. The City of New York has an aging building stock in need of renovation and the City has adopted legislation and building codes, and is providing incentives to encourage energy retrofits that will expand demand for green building materials. Local initiatives such as *PlaNYC 2030* and the *Greener, Greater Buildings Plan* place energy conservation at the forefront of reducing the City's energy use and carbon footprint. These initiatives stimulate demand which can generate greater economic activity within the local economy by strengthening supplier relationships with local product manufacturers.¹

Pratt Center obtained industry information directly from 30 local manufacturing companies through a series of electronic surveys and in-depth interviews. Respondents who manufacture lighting equipment, interior building products, and/or heating and cooling equipment employ 24 production staff on average (which is seven more employees than other industry firms).

Greening operations is a successful business strategy. Despite the lingering economic downturn, the majority of manufacturing firms interviewed have not had to lay off any employees in the last year. Seven companies actually reported hiring more people (three of which were companies engaged in manufacturing products that increase energy efficiency). In addition, six companies also anticipate increasing staff levels in the next five years.

¹ For example, subsequent to completion of this study, Pratt was funded to work with the School Construction Authority to identify local manufacturers of building materials that can be used in SCA's weatherization efforts: SCA will spend approximately \$700 million over the next 10 years to renovate the City's schools, and this work is being used to incentivize local manufacturers to upgrade and reposition so that they can compete for these sales.

Firms pursuing green business strategies have weathered the recession economy better than their sector counterparts, with the majority of firms reporting revenue growth in both pre-2008 and the past 12 month timeframes. In addition, over half of the firms that are marketing themselves as green or environmentally sustainable reported that their revenues have either stayed the same or grown in the past 12 months.

These positive findings have not yet translated into greater demand for new employees. The challenges that manufacturers currently face are related to their ties to sectors severely impacted by the recession, such as construction. But even firms which are doing well are generally not concerned with assistance finding and training new employees. The majority of companies already have established professional networks that they tap for new hires and replacements. Firms also prefer to train their own employees since the knowledge and skills necessary are bound to their company's specific product lines. The building products market is in a time of innovation where funding for research and development stands to play a significant role in giving a company its competitive edge. The study revealed that 22 companies have brought a new product to market designed to be greener or more energy efficient than a previous model. However, government incentive programs did not play a role in their product development, nor are they seeking government funding for R&D activities due to the uncertainty of actually receiving the funding and the onerous application processes.

Pratt Center offers the following recommendations to the workforce development community so that it can better focus its efforts to expand and strengthen New York City's green manufacturing sector.

Recommendations

1. Develop demand for local green products and labor

At this point in time, the policy focus needs to be on job creation as opposed to workforce development. Organizations dedicated to addressing barriers to employment, training and/or placement need to engage around economic development – growing and addressing the concerns of business – and then use those relationships, goodwill and new jobs to advance their workforce missions. For example, workforce development organizations could provide leadership to capitalize on the opportunities for local procurement within city and state levels of government to stimulate job creation. Quasi-government agencies including NY School Construction Authority, NYS Dormitory Authority, and health care are potential points of entry in which to connect buyers with local producers, and link any resulting job growth back to employment goals.

2. Support relationship building for local sourcing

Workforce foundations are in a unique position to advocate for and support intermediary organizations to facilitate the connection between local public business programs and companies pursuing government contracts to ensure they are “bid-ready,” thereby increasing chances for success for winning the contract.

3. Increase access to incentive programs for small businesses

Government funding currently plays a minimal role in a company’s R&D activities, slowing the potential for bringing new energy products to market. Workforce funders could engage government actors (including NYSERDA) to identify strategies that would create more opportunities for small businesses to undertake product research and/or establish their firms in New York. This might include streamlining funding programs and clarifying and/or reducing the level of requirements, developing upfront financing or grant programs that allow businesses to access funding immediately, and providing assistance with project proposals.

4. Coordinate product development with workforce training resources to grow energy and other green products sectors

Additional training may be needed as companies engage in R&D and create new products to meet the energy reduction goals in both private and public markets. Workforce funders can identify companies/industries that are producing new products, identify the gaps in workforce skills and link with training programs.

Introduction

New York City's manufacturing sector is made up of a diverse set of small and medium-sized businesses, making products that span a host of industries including food, apparel, metal work, and building materials. These firms have been supplying goods to local, national, and international markets for decades. But the orientation of the businesses has changed from large-scale companies manufacturing commodity products to predominantly small firms producing high-end niche products. While the manufacturing landscape has changed in New York City over the last 40 years, local industry continues to be a vital economic contributor by supplying goods and services to the city's other sectors as well as creating jobs for residents in low and moderate income neighborhoods.

The wake of the "green revolution" has created additional opportunities for New York City manufacturers to compete in both individual consumer and larger commercial markets. Manufacturers are adapting existing lines as well as developing new energy-efficient products to meet the emerging demand for goods and services which incorporate a combination of environmentally-preferable materials, sustainable business practices, and energy efficiency. New companies have also formed and are innovating products to compete in the marketplace.

The City of New York's energy and carbon footprint reduction goals which span across residential, commercial, industrial and government sectors are outlined in *PlaNYC 2030* and the *Greener, Greater Buildings* plans. Energy conservation in buildings is a significant portion of the City's overall reduction plans and includes retrofits, equipment upgrades, and retro-commissioning buildings' energy systems. These efforts require a variety of products, many of which are manufactured within the five boroughs. As a result, the City's initiatives and laws have created an opportunity for the procurement of locally manufactured products. And New York City manufacturing companies are particularly well-positioned to play a significant role in producing and supplying green building and energy-related products to local and regional markets.

The sustainability plans can be used to leverage both public and private spending to also further economic development projects that benefit local manufacturers and ultimately create jobs. A coordinated set of services and ongoing support for companies is required in order to foster New York City's green product market. Such services include expanding government outreach to local firms to notify them about projects, establishing marketing assistance and business development programs to ensure firms are "bid ready", and streamlining R & D funding programs so that they are more easily accessible to small businesses.

This report analyzes New York City's green manufacturing job sector and its growth potential. The analysis focuses on green market transaction chains that can drive sales and job growth in low and moderate-income neighborhoods. As part of our research goal, we identified five objectives to guide our analysis and policy discussion.

1. Create a profile of existing conditions for local manufacturing businesses including growth/decline in sales/staff and the demand for green products from their respective consumer bases, current sustainable business practices, and workforce development issues. Isolate green manufacturing businesses from the aggregate for a more in-depth analysis.
2. Analyze trends in “green job” creation in New York City’s manufacturing sector, and the accessibility of these jobs for low-income New Yorkers with a focus on components and products relevant to the energy efficiency and green building supply chain.
3. Assess workforce development and training organizations’ ability to meet the needs of businesses working in the green sector in terms of referrals and trainings.
4. Identify obstacles for entry into the green product universe including access to financing and incentives, market demand, and government regulations.
5. Develop policy recommendations to help different neighborhoods capture more of the green economy and related jobs.

Pratt Center obtained industry information directly from 30 local manufacturing companies through a series of electronic surveys and in-depth interviews. Companies spoke with us on a range of business topics including product development and market trends, sustainable business practices, existing workforce, as well as job training and placement opportunities. Their valuable input was the basis of this assessment, which was used to develop our recommendations on fostering the growth of New York City’s green manufacturing sector and its job creation potential for low and moderate-income residents.

New York State Green Jobs Study

The Pratt Center’s research and analysis on the potential for green job creation in the local manufacturing sector coincides with the statewide study of the green labor market undertaken by the New York State Department of Labor (DOL). DOL developed the Green Jobs Survey to explore various industry clusters (including component manufacturing) that produce goods or deliver services to increase energy efficiency or generate renewable energy. Survey questions were primarily focused on determining the number of green firms and workers, expectations about the future of green employment, credentialing, as well as employee recruitment and training opportunities. The study team used the North American Industry Classification System (NAICS) to define the industry clusters for its analysis.

That state research group identified 31 sub-categories of NAICS codes for component manufacturers. The Pratt Center was able to identify some additional codes that represent ancillary businesses, such as metal stamping which can manufacture parts for lighting products, that would expand the opportunities for green job creation. After querying our database of local companies, we found that there are at least 280 companies that list themselves under the NAICS codes related to energy efficiency. The three largest sub-categories for local companies include Sheet Metal Work Manufacturing (NAICS 332322) 65 firms, All Other Plastic Manufacturing (NAICS 326199) 53 firms, and Metal Window & Door Manufacturing (NAICS 332321) 41 firms. Table 1 lists the number of firms associated with the NAICS. Our data builds on the scope of the State’s work to delve deeper into the impact that sustainable strategies are having on New York City manufacturers.

Table 1 Number of manufacturing companies by NAICS code in New York City

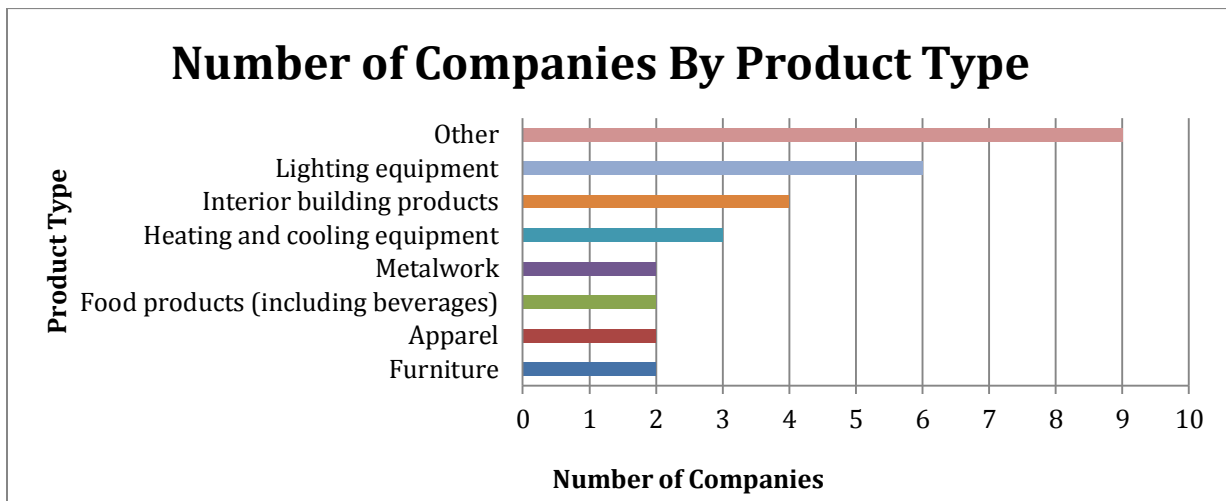
<u>NAICS Code</u>	<u>No. of NYC Companies</u>	<u>NAICS Code</u>	<u>No. of NYC Companies</u>
332322 Sheet Metal Work Manufacturing (Primary)	65	325211 Plastics Material & Resin Manufacturing (Primary)	4
326199 All Other Plastics Product Manufacturing (Primary)	53	334413 Semiconductor & Related Device Manufacturing (Primary)	4
332321 Metal Window & Door Manufacturing (Primary)	41	334513 Instruments & Related Products For Measuring, Display & Control (Primary)	4
332312 Fabricated Structural Metal Manufacturing (Primary)	29	333415 Air-Conditioning, Warm Air Heating, Commercial & Industrial Refrigeration Equipment (Primary)	3
335121 Residential Electric Lighting Fixture Manufacturing (Primary)	17	335999 All Other Misc Electrical Equipment & Component Manufacturing (Primary)	3
327215 Glass Product Manufacturing Made Of Purchased Glass (Primary)	15	333613 Mechanical Power Transmission Equipment Manufacturing (Primary)	2
321911 Wood Window & Door Manufacturing (Primary)	9	333912 Air & Gas Compressor Manufacturing (Primary)	2

<u>NAICS Code</u>	<u>No. of NYC Companies</u>	<u>NAICS Code</u>	<u>No. of NYC Companies</u>
334519 Other Measuring & Controlling Device Manufacturing (Primary)	9	334418 Printed Circuit/Electronics Assembly Manufacturing (Primary)	2
335122 Commercial, Industrial & Institutional Electric Lighting Fixture (Primary)	8	334515 Instrument Manufacturing For Measuring & Testing Electric & Electrical Signals (Primary)	2
334419 Other Electronic Component Manufacturing (Primary)	6	335931 Current-Carrying Wiring Device Manufacturing (Primary)	2
333999 All Other General Purpose Machinery Manufacturing (Primary)	5	334414 Electronic Capacitor Manufacturing (Primary)	1
<u>Total No. Companies</u>			<u>286</u>

Sector Profile

For this analysis, the Pratt Center surveyed 30 local manufacturing companies across all industries including food, furniture, apparel, as well as building products related to energy efficiency—such as lighting and heating and cooling equipment. 14 of these companies make products related to green building and energy efficiency (defined as lighting equipment, interior building products, and heating and cooling equipment). These companies will be referred to as the “EE companies” throughout this report. **Chart 1** indicates the type of products made by the study’s participants.

Chart 1



Existing Workforce

New York City’s manufacturing workforce is primarily made up of immigrants and people of color who are high-skilled workers and earn wages greater than the comparative service sector which includes restaurant and retail businesses. On average, companies in this study employ 17 production workers. However, EE companies employ 24, a higher average than the other industry participants in the study.

Manufacturing companies are known for their strong employee retention rates with workers staying an average of seven years at a firm. Of course there are shorter time periods, but many reported longer durations lasting over 15 years. It is common for a person to spend the majority of their career with one company. When people do leave, it is for a variety of reasons such as retirement, lack of skill (two companies noted this), taking a position with another company, moving out of New York City, or a union-related issue.

The majority of the companies that completed the survey reported that they find new employees through their own professional networks. In some instances, firms have found that various

cultural or immigrant groups have a particular set of skills that meet the company’s needs. Thus an owner will typically turn to their existing employees for replacement referrals and new production hires.

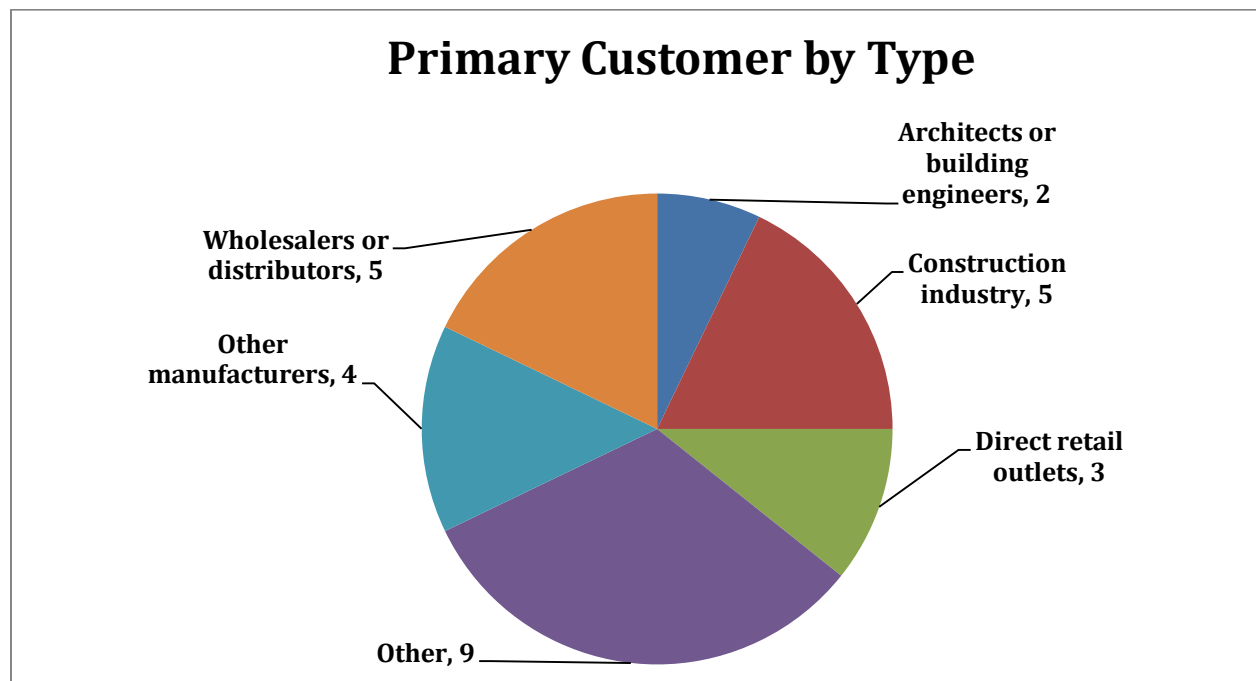
For example, one company in particular has a set of machinists who are primarily Russian and a group of welders from the West Indies. According to the owner, these two cultural groups are the best at their respective trades and therefore he rarely hires outside of either of these ethnic groups. We found a similar instance at another company where the majority of workers are Dominican or Ecuadorian. When this particular company is looking to hire production workers, it primarily turns to its employees for suggestions.

In addition to relying on inter-company referrals to find workers, companies use a combination of sources including general publications, online postings, and workforce development organizations. Six companies have consulted with a workforce development organization—but only one uses it regularly as a single source to find workers.

Customer Type

The survey participants sell to a variety of customer types which reflects the diversity of industries that conduct business transactions with the manufacturing sector in New York City. **Chart 2** depicts the distribution of customers by type and indicates that these are almost all business-to-business sales with only one respondent selling directly to the end user. EE product manufacturers’ customers are typically construction-related sectors.

Chart 2

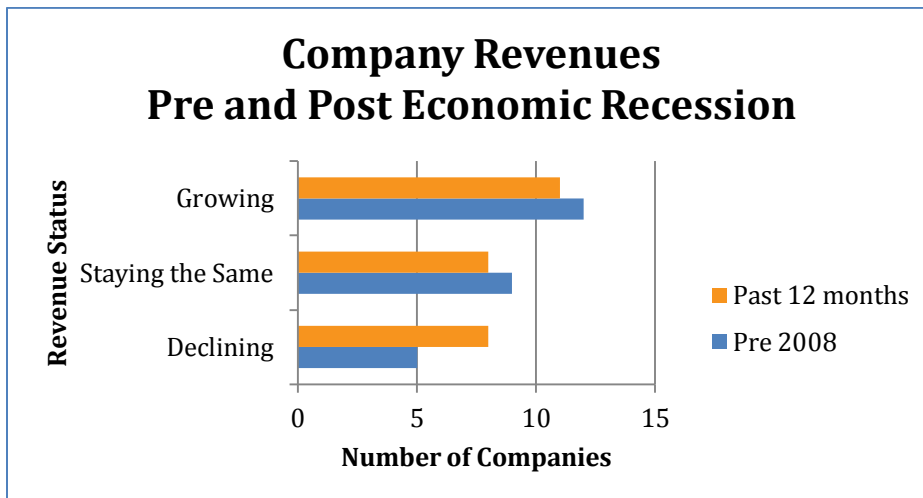


Sales Trends

Over 70% of the study’s participants reported that their revenues are either staying the same or growing (41% and 31% respectively). We also inquired about pre-recession revenues (which we defined as starting in 2008). 81% of respondents indicated that revenues were growing or staying the same. Unfortunately, the number of companies reporting that their revenues are declining in the past 12 months increased from 19% to 30%.

Conversely, the majority of EE companies reported revenue growth in both pre-2008 and the past 12 month timeframes. **Chart 3** provides a comparison of companies’ revenue over time, pre-economic recession (before 2008) and in the past 12 months.

Chart 3



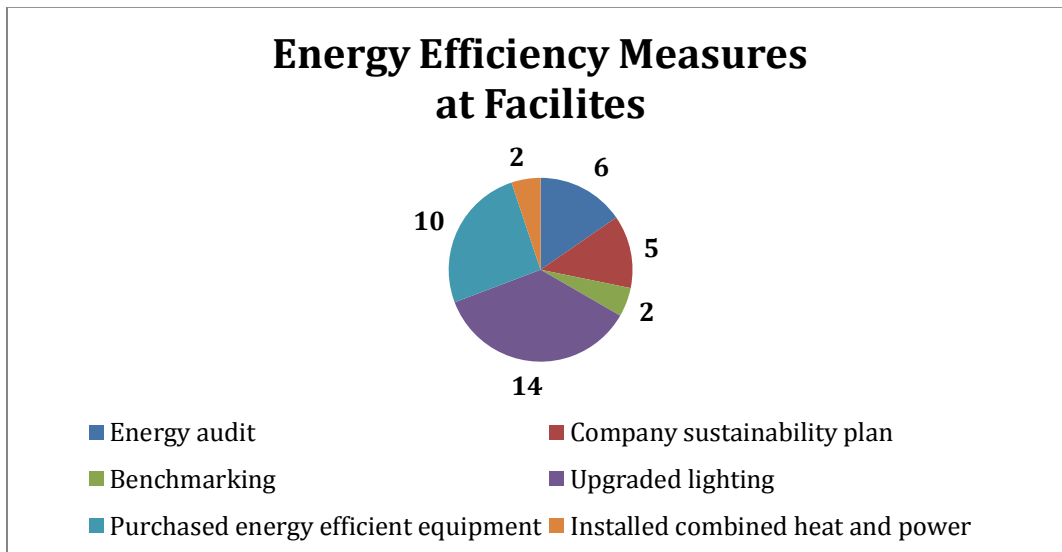
Companies Engaging in Sustainable Business Practices

Manufacturing firms have multiple opportunities to increase efficiency inside their factory walls while also producing an environmentally-preferable product. As a result, companies are changing both their operating practices and product lines to reduce their environmental impact and increase sales. Some see it as a moral imperative while others view it as a business prospect or even as a strategy to remain competitive in their industry. For several of the lighting firms, energy efficiency has also become a core marketing strategy. Lighting products have always been required to meet industry standards (which included varying levels of efficiency), information which was mostly directed to building engineers, not public consumers. But now individuals are taking more of an interest in the performance and efficiency of their lighting and have learned about both the economic and environmental benefits of energy efficient lighting. Thus, product information that was once only useful to the industry is now a major driver of sales.

Tenure and Energy Conservation

The majority of the study’s participants indicated that they rent their space. Approximately 75% of companies are renters, while the remaining 25% own their building. This is typical of the local manufacturing sector where the vast majority of companies rent space. Of the seven companies that own their building, five of them had either undergone an energy audit or instituted an energy conservation measure at their facility. Surprisingly, 14 companies who rent their space have also made an effort to improve the efficiency of their facility. Lighting upgrades and equipment purchases make up for over 60% of the measures undertaken, followed by 11 companies that either had an audit conducted at their facility or developed a sustainability plan.

Chart 4 indicates the types of energy efficiency measures and the number of companies that undertook them.



This level of activity around energy efficiency indicates that companies recognize the value that energy conservation can bring to their facility in terms of reducing both their energy usage and ultimately their cost. It also reveals that not owning the space may not be as much of a deterrent as it was in prior years to making efficiency improvements at a facility.

Green Product Development

Our discussions with the study participants revealed that 22 companies have brought a new product to market that is designed to be greener or more energy efficient than a previous model. It should be noted that there are varying definitions of a green product. Several measures could be applied to evaluate the “greenness” of a product, including product certifications, performance levels, as well as a simple comparison between two like products to determine which one has a stronger environmental performance. In addition, there are firms such as metal stampers who are producing components that make up energy efficient products, but are not recognized as a green manufacturer. These kinds of entities may miss a green marketing opportunity since their specialty is component based and is embedded within the product’s supply chain. In addition, these companies are rarely (if ever) counted in the “green jobs” sector.

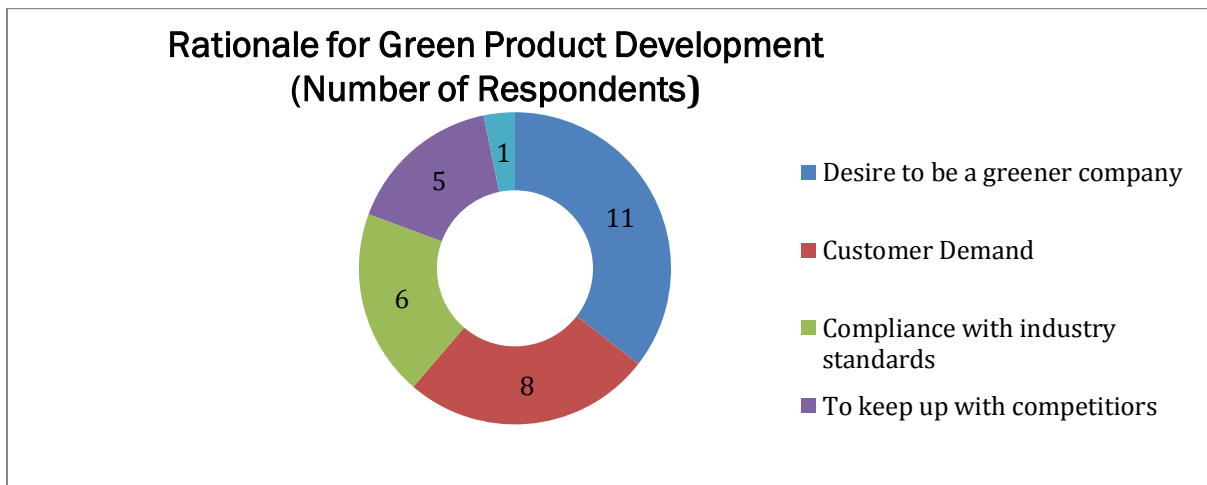
Third party environmental product certifications have become increasingly important for companies seeking to establish their positive environmental performance. It should be noted that there is disagreement in the industry about the validity of some of these certifications, including Energy Star®. Of the companies who responded to the certification inquiry, 11 have at least one product certification, nine did not have any, and seven companies said that a certification does not currently exist for their product. Six of the eight companies holding a certification are EE companies—indicating that certifications are more applicable for some product categories than others.

Government incentive programs were not influential in companies’ product development. Only one company reported government incentive programs as being the reason for its R&D efforts. Two companies noted that they considered applying to NYSERDA (the most relevant organization for an EE company’s product development), but found the application and project process to be confusing and too time consuming to pursue. In general, there was a consensus that these downstate firms do not engage in subsidy programs for a combination of reasons—the application process is too onerous, programs are too specific and rigid, and/or their past experience was not positive.

However, government incentive programs have played a role in addressing energy usage inside the factory. As noted earlier, several of our survey respondents who rent their space have either had an energy audit conducted at their facility or implemented an energy conservation measure. We believe that we would see more implementation of energy savings measures within the industrial sector if the incentive programs were more applicable to the renter base.

Companies’ rationale for pursuing sustainable business strategies varied from the moral to the practical. The majority cited a “desire to be a greener company”, while “customer demand” and “compliance with industry standards” were the second and third most popular reasons. **Chart 5** below indicates the number of responses for each rationale.

Chart 5



Sustainability Marketing and Sales

Sustainability marketing has directly contributed to sales increases for companies. Over half of the study’s participants (10 of which are EE companies) indicated that they market their business as green or environmentally sustainable. **Table 2** is a cross tab of two survey questions comparing companies’ responses on green marketing and revenue performance in the past 12 months. The majority of companies marketing themselves as experienced revenue growth in the past 12 months—and all but two believe the marketing strategy is helping to increase the sales. Conversely, those that do not market themselves as green or sustainable have experienced declining revenues in the past 12 months.

Table 2 Green Marketing and Revenue Performance

		Q: Do you market your company as green or environmentally sustainable?			
		%	Yes	%	No
Q: Which of the following reflects your company's revenues over the past 12 months?	Growing	52%	9	20%	2
	The same	17%	3	20%	2
	Declining	23%	4	50%	5

Additionally, companies who incorporate sustainability into their marketing strategies keep current with green market trends. The majority of companies rely on multiple sources for information including: trade magazines, websites, colleagues, and articles from non-profit organizations covering green issues. This points to the importance of ensuring that product manufacturers pursuing sustainability strategies have access to both current and accurate information. Significant amounts of time and money can be spent on product R&D, and given that New York City's manufacturing sector is predominantly small businesses, they do not have an excess of either luxury.

Finally, there is a growing awareness of the problem of greenwashing within both the consumer and supplier market. *Greenwashing* is a form of marketing used to deceptively promote the perception that a company's policies or products are environmentally friendly. Pratt Center has encountered instances when a local firm does not even know they are greenwashing—all the more reason for them to have the correct information.

Business Challenges

The Pratt Center has been providing direct services to the New York City manufacturing sector since 1997. In almost 15 years of working closely with these small businesses, we have seen first-hand the number of challenges these companies face on a daily basis. A majority of these issues are related to the high operational cost of being located within the five boroughs, including rising rents and property taxes, inconsistent city regulations resulting in tickets and fees, labor costs, and energy pricing. Outside of the business operations sphere, companies sometimes face barriers in obtaining financing and identifying training resources. Combined, these obstacles stall a company's efficiency and ability to engage in research and development and other business development activities that facilitate growth.

The emergence of a "green" market presents a new set of challenges for local businesses—which are different from the everyday matters described above. Both individual consumer and government actors place a greater value on the environmental impacts of products and services. Education has been a key issue in which much of the responsibility has been placed on companies to educate themselves on environmental terms, eco-labeling, and alternative materials. In addition, firms have to then take this new level of knowledge and understanding and pass it on to the consumer.

Companies who manufacture a product used in the construction, upgrade, and/or maintenance of a building are heavily dependent upon the private construction industry for sales. This has been one of the hardest hit sectors (especially the residential market) during the recent economic crisis—threatening the livelihoods of product manufacturers. This experience has revealed the need for diversified markets to compensate for downturns.

To address this issue, government procurement presents a good opportunity for companies to expand their customer base and capture a greater share of the green market. In difficult economic times when the private market is struggling, government is a possible substitute as it will continuously execute construction and retrofit projects that require products. Several EE firms are already selling to various departments within city and state government—including the School Construction Authority.

Government purchasing can be a difficult system for small businesses to navigate. Local procurement rules are confusing and bids require a significant amount of time and paperwork. Furthermore, rapidly changing specifications, certifications, and pricing schedules have been known to cut drastically into a company's profits. However, leadership from the public sector can address these issues. Technical assistance can play a significant role in this arena including:

- clarifying procedures and even expediting certifications and bids for companies;
- firming up public commitment;
- tracking and reporting dollars spent on local products to convey the importance of local sourcing to contractors; and
- vigorously contacting firms to ensure that local companies are solicited and have fair opportunities to bid.

Workforce Development and Skills Training

Business Assistance Infrastructure

There is an existing network of organizations that work directly with New York City's manufacturing companies providing a range of services including: optimizing internal operations; assisting with job placement and training needs; applying for loans and incentive programs; and facilitating relationships with local government. The individuals and organizations providing such critical services are industrial development corporations, Industrial Business Zone managers, the Industrial and Technology Assistance Corporation, and NYIRN/Pratt Center (amongst others). Several of these organizations were co-founded by local businesses themselves in an effort to revitalize industrial areas and provide a consistent and comprehensive set of business assistance programs to the city's production firms. The local development corporations are specifically located in the neighborhoods with high manufacturing activity, offering easy access to service providers. In addition, there are several city agencies including the Workforce1 Centers, Department of Small Business Services, and the Economic Development Corporation that also have departments dedicated to supporting these small businesses.

The localized organizations as well as NYIRN/Pratt Center and ITAC have established strong working relationships with the city's manufacturing business community. By earning their trust, the organizations have been able to gain intimate knowledge of the inner workings of the manufacturing firms—thereby positioning them to liaise between the manufacturer and a city department. It also enables them to engage in advocacy efforts on behalf of the firms as they have the on-the-ground experience and have developed a knowledge base about the needs of industry. Unionized companies will also look to their respective unions for assistance in business or government relations.

Some of the local development corporations are housed in a borough's economic development office which also has a workforce development department. Others such as the East Williamsburg Valley Industrial Development Corporation (EWVIDCO) are affiliated with a workforce organization. In this case, EWVIDCO is a part of the St. Nick's Alliance which has a multitude of specialties including workforce development. However, there are several independent organizations providing both job training and placement services to various sectors including manufacturing throughout the five boroughs.

Job Placement

Workforce organizations offer job placements for a wide range of positions in manufacturing firms from production to executive roles including plant managers, vice presidents, and chief

operating officers. The organizations work for both sides—the job seeker and employee seeker. Job placement services are free of charge (for both parties) with each involving an intake process. A company looking for an employee would need to list location, skill requirements for the position, company culture, salary, etc. The job seeker would list the position which they are seeking, skill sets, and work experience amongst other attributes. The information is entered into a database by the placement specialist and can be queried when a position becomes available. Organizations typically seek only full-time placement opportunities as this is a stronger path to permanent employment. Individual organizations have their own follow-up timelines—one with whom we interviewed reported that they contact a new employee on a monthly basis for up to one year to ensure that the placement is successful.

Despite the lingering economic downturn, the majority of manufacturing firms interviewed have not had to lay off any employees in the last year. Seven companies actually reported hiring more people (three of which were EE companies). In addition, six companies also anticipate increasing staff levels in the next five years. The following is a breakdown of the number companies who plan to hire and the number of new employees they anticipate they will need.

<u>New Employees</u>	<u>No. of Companies</u>
1-5	1
6-10	2
11-15	2
16 or more	1

New York City manufacturers predominantly employ local residents—many of which reside in low to moderate-income neighborhoods. The local labor supply continues to be a significant locational determinant for companies operating in the city. Thus, any new hires will likely be from this particular cohort of the city’s workforce.

Yet, as discussed in the *Company Profile* section of this report, while firms may be planning to hire additional employees, they will not likely contact a job placement service for a referral. Six companies reported having consulted with a workforce organization at some point in time, but only one uses the services regularly as a single source to find workers. Instead, the manufacturing firms reported that they already have contacts in the industry and within their own workforce. In the event that they need to consult an outside entity for assistance, companies will most likely begin by contacting one of their local service providers. After which, the service provider will either contact a workforce organization such as Brooklyn’s Workforce1 Center or put the company in direct touch with the organization.

It is important to note the role that personal contacts and referrals play in job creation within this sector—especially for production jobs. It appears as a relatively loose method in which to hire

and even train employees. However, given the strong cultural ties to certain job types such as the Russian machinists, West Indian welders, and Latino fabricators there is a consistent supply of workers to meet firms' production demands. This scenario can be found in each borough—traversing local industries (including EE companies). The positive aspect of this is that companies do not have to spend a great deal of time filling production positions, minimizing the potential for delayed product orders. The negative aspect is that workforce organizations seeking placements have a lesser number of options for their job seekers.

Job Training—General

Job training is a crucial element to an employee's success as well as a company's overall ability to make and sell quality products. Training opportunities are available for both the individual job seeker as well as a company with a specific training issue. Some of the individualized trainings include job readiness, ESL, and technical skills development. A company which requests training may need it for operating a new piece of machinery, for instance.

Skill requirements vary by industry and position at a manufacturing firm. Entry or low-level production workers typically do not need to have a strong skillset to gain employment as the company will help to shape and develop them, specific to their production processes. Companies reported that it is actually easier to start with a “blank canvas” than trying to adapt or correct previous experience. However, there are positions (most commonly found amongst the EE companies) where a specific skill, training, or production experience is necessary to be hired. For instance, a machinist typically needs prior training as some of the equipment can be dangerous if not operated correctly. Also, several of the EE companies have engineers on staff, which necessitates a traditional university degree and current industry certifications. Thus these credentials would already be obtained before taking a position with a manufacturing firm.

There is a baseline of basic job readiness that cannot be taught inside the factory such as punctuality, self-discipline, and the ability to learn. This is a crucial intervention point for the city's workforce organizations as they are in the best position to prepare incoming workers for full or part-time employment.

Job Training—Green

Training for “green jobs,” particularly for “green manufacturing jobs” has not been a straightforward process. Workforce development organizations are poised, waiting to hear from local companies about their training needs to prepare workers to manufacture environmentally-preferable and/or clean-tech products. Organizations reported calling manufacturing companies regularly seeking input on the types of “green training” that would be useful to them, but have received little to no response.

To some extent this is because expectations of a burst in demand for new products were excessive. In addition, as the manufacturing firms pointed out, new skillsets are not necessarily required to make green products. Instead, a different material or assembly process may be substituted, but not a new skill. This is especially true for the local lighting industry where it is meeting greater demands for efficiency, but the parts for the lighting are essentially the same.

In addition, the sector is so diverse that at this point there is no core of skills that all workers or even managers need to have to perform satisfactorily. This might change, but the sector is still in its infancy such that there is no clearly defined set of skills leading to a recognized certification that would be appropriate for most New York manufacturers.

According to the Workforce1 Center, new training programs may be established in the future if more renewable energy products and components such as solar panels and wind turbines are made locally. These are products that have never been manufactured in the city and therefore workers would need to acquire additional skills for their production. Until then, organizations will continue to offer traditional programs and adapt according to demand.

This brings us back to the need to better integrate workforce development with economic development and support job creation initiatives. For example, the City of Los Angeles is purchasing light rail cars and dramatically expanding its public transit system. The City has incorporated criteria in its bid selection process that would require all bidders to fabricate the rails cars in LA and to implement a local hiring plan as part of their operations. Similarly, in New York, the School Construction Authority is beginning a 10 year, \$700 million renovation plan for the City's public schools to reduce their energy consumption. The SCA solicitation of energy service companies did not originally provide for the use of locally made products but subsequent to its release, the SCA began working with the Pratt Center to identify local manufacturers who would supply the ESCOs with the energy efficient lighting and other products.

Conclusion

The creation of new green collar jobs (as opposed to the transformation of traditional blue collar jobs) has been slow, in part due to the recession as well as the structure of the manufacturing sector, which is composed of many small firms spanning a diverse range of industries.

Nevertheless, many New York City manufacturers are moving into the growing green marketplace for products related to energy efficiency and for other consumer goods with green attributes. These companies report greater economic activity and more positive expectations for future growth than manufacturers not pursuing sustainable business strategies.

The investment to upgrade and reposition into green markets to expand and create jobs can be facilitated by greater public and private sector engagement. There are already numerous programs to provide financing, technical assistance and other services to spur growth. However, there is a gap around local sourcing to direct spending to local companies to seed their transformation and encourage them to invest in energy efficiency and other progressive environmental measures. This gap is the result of inefficiencies within existing purchasing practices and funding mechanisms—both of which also stall the participation of firms in the local economy. Pratt Center submits the following recommendations for the coalition to review and build upon in order to harness opportunities for firms to thrive and residents to be properly trained and employed—all of which will strengthen our local economy and create a more environmentally sustainable city.

1. Focus on Business Growth and Job Creation

Until there is greater economic recovery in general, we recommend that the workforce development organizations encourage more economic development efforts, both through policy, advocacy and services. This shift should not only advance the importance of this issue, but lay the groundwork for directly engaging with businesses and developing relationships that will later be important for workforce development itself. One area in particular that we want to single out is encouraging local procurement by city and state governments. As demonstrated by the Los Angeles transportation initiative, direct government spending creates an opportunity for integrating workforce development objectives into economic development spending and benefits. Quasi-government agencies including NY School Construction Authority, NYS Dormitory Authority, and health care are potential points of entry in which to connect buyers with local producers.

2. Support relationship building for local sourcing

Workforce foundations are in a unique position to advocate for and support intermediary organizations to facilitate the connection between local public business programs and

companies pursuing government contracts to ensure they are “bid-ready,” thereby increasing chances for success for winning the contract.

3. Increase access to incentive programs by small businesses

Government funding currently plays a minimal role in a company’s R&D activities, slowing the potential for bringing new energy products to market. Workforce funders could engage government actors (including NYSERDA) to identify strategies that would create more opportunities for small businesses to undertake product research and/or establish their firms in New York. This might include streamlining funding programs and clarifying and/or reducing the level of requirements, developing upfront financing or grant programs that allow businesses to access funding immediately, and providing assistance with project proposals.

4. Coordinate product development with workforce training resources to grow energy and other green product sectors

Additional training may be needed as companies engage in R&D and create new products to meet the energy reduction goals in both private and public markets. Workforce funders can identify companies/industries that are producing new products, identify the gaps in workforce skills and link with training programs.