



Energy Efficiency and Retrofit
STRATEGY ARTS

EMERGING

Industries Project



Green Economy Task Force
building a green economy for all philadelphians



This study produced for the Sustainable Business Network of Greater Philadelphia by Strategy Arts, www.strategyarts.com, 610.701.5050.

Energy Efficiency and Retrofit Industry

Purpose

In order to learn how to grow green collar jobs in the Philadelphia area, we must first understand the businesses that create these jobs. The purpose of this study is to gain a deeper understanding of businesses in one of the Green Economy sectors – the energy efficiency and retrofit industry. A strong focus on workforce issues and a dialogue with workforce agencies offered a unique approach to this study and produced very beneficial findings.

Process

Since the goal was to gain a deeper understand in order to direct further studies and initiatives/programs for the Sustainable Business Network (SBN), the Green Economy Task Force (GETF) and their stakeholders, the study was designed with focus groups that would provide rich data from dialogue. The study had three sessions:

- Session 1: Businesses with less than 20 employees focusing on workforce needs and business growth factors
- Session 2: Businesses with 20 or more employees focusing on workforce needs and business growth factors
- Session 3: Businesses of all sizes and leaders from public workforce development agencies focusing on gaps and alignments of these two stakeholder groups

Participants

Session 1: Businesses with < 20 employees

9 participants
Average 5.3 employees

< 20 employees

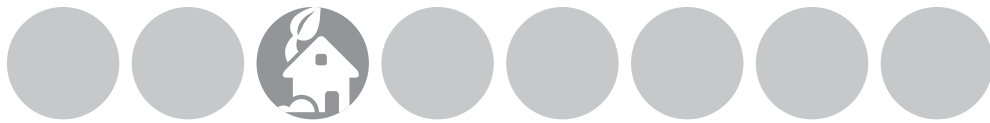
Session 2: Businesses with > 20 employees

5 participants
Average 212.6 employees

> 20 employees

Session 3:

4 businesses
7 workforce development organizations



Contributors

BUSINESSES

BioNeighbors Sustainable Homes, LLC

Clark Energy Consultants

Elliot-Lewis

Energy Coordinating Agency

Fix'em, Inc.

Gensis Group, Ltd.

GREENandSAVE

Green Homeworks Inc.

Greenable, Inc.

JHK Sustainability Solutions, LLC

Lord Contractors, Inc.

Practical Energy Solutions

Tozour Energy Services

US Facilities

WORKFORCE DEVELOPMENT ORGANIZATIONS

American Cities Foundation

Community College of Philadelphia

Energy Coordinating Agency

Federation of Neighborhood Centers

JEVS Human Services

Metropolitan Career Center

Resources for Human Development

For more information

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Highlights and Conclusions

The focus group data provides key insights on how to grow “green jobs” in this industry and beyond and how to make them pathways out of poverty. Below are some of our key conclusions from analyzing the data.

They fall into 3 categories:

- Programs and policies that enhance business growth
- Aligning workforce development programs with the skills needed in the businesses
- Create partnerships between workforce development programs and businesses to ensure graduates have a clear path to open employment opportunities

Policies are definitely having an impact on business growth in this industry.

Business Growth

Policies are definitely having an impact on business growth in this industry. The 2010 deregulation of electricity generation was cited by many as a key policy change that is already impacting business, and expected to impact even more over the next year. Many other policies and programs were cited, with the most favorable ones being those that offset the capital investment of the energy efficiency work.

Increasing awareness of the benefits of energy efficiency and improvements in technology are key factors causing growth for the industry. The market for this industry is growing significantly as homeowners and business owners become aware that energy efficiency changes are not just good for the environment but also result in significant cost savings. The increasing affordability of energy efficiency options continues to grow as technology advances. The smaller businesses cited the recession as a key impediment to growth.

There is increasing awareness of the importance of local and small businesses for our economy. The businesses discussed that the increased pressure to “buy local” has had a positive effect on their businesses. Procurement requirements that specify the need to use local and small businesses on projects in this industry are growing. Many small businesses do not connect to these opportunities either because they do not know how to access the information about these jobs or they do not know how to meet some of the requirements for the jobs (i.e. insurance and bonding). Solutions to address this gap could be a strong support to growth in this industry.

Workforce Skill Needs

Workforce training programs focusing on “green collar jobs” need to include soft skill training. Some of the necessary soft skills are ones that would be applicable to any job, such as strong communication skills, job readiness skills and customer service. The ability and willingness to learn new skills and technology is important in this industry as new products and services are coming to the market all the time, and the pace of those changes is only expected to increase. For the smaller businesses, entrepreneurial skills and project management skills are also important.

Specific technical skills vary according to the nature of the business itself (i.e. carpentry for installing replacement windows) but there are a number of common skills shared across the industry. Almost all the businesses expressed the need for employees to have a working knowledge of building energy systems and how different systems impacted the overall energy performance. Also a working knowledge of energy efficiency and broad understanding of “green” issues related to their work. Having said that, the businesses also acknowledged that “green issues” is an evolving body of knowledge. “STEM” (science, technology, engineering and math) are also important, with a strong emphasis on applicability, for example calculating the return on investment of a product or service a customer is considering.



Aligning Public Workforce Training with Green Jobs

Smaller businesses would be more likely to consider candidates from public workforce training programs if the process of accessing those candidates made their hiring process easier. Many of the items they suggested (i.e. data base of candidates, single point of contact) already exist, suggesting that awareness is a key factor for these businesses.

Larger businesses often have union employees and so need the training system and other systems within the unions to adapt to the changing needs of the workforce. Some of the key items were less lag time for training programs to include new technologies, increased need for cross-training and systems for continued pathways for career growth.

When workforce development programs and businesses are aligned, pathways out of poverty are created and businesses get great employees. Some of the key factors that create this alignment are:

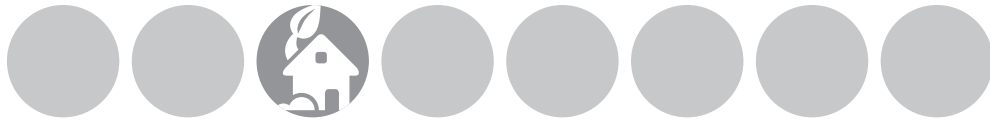
- **Workforce training programs and businesses create specific programs together.** These include training programs customized to specific jobs that a business is or will be hiring for on an ongoing basis and hiring processes so that the graduates of the programs have priority consideration as open positions come up.
- **Workforce training programs collaborate with other social service organizations to provide wrap-around services that a potential employee needs to be successful.**
- **The support and communication continues after the hire is made.** Business partners offer feedback to the workforce development agency about worker needs. Workforce development agencies continue to offer wrap around services as well as continuing education to both support the employee in their current job as well as to open up possibilities for career growth.

There seems to be no current partnerships between workforce development agencies and small businesses in this industry. Since the current partnerships are built are based on larger companies who have a need for a large number of the same kind of position, a study of how to create such a partnership with smaller businesses would need to be done.

conclusion

Conclusion

While this study had a limited number of respondents involved, the quality of the dialogue was high and the data reveals some key areas for further work and research that will move the green jobs work in Philadelphia forward significantly.



Data Results

Important Skills for New Employees – Soft Skills

SMALL BUSINESS

Numbers indicate which they ranked as most important within this category

- Motivation beyond paycheck – ideological fit (5)
- Customer service (4)
- Entrepreneurial nature (2)
- Willingness to lead projects, problem solve, pursue purposeful change (2)
- Specific skills include weatherization, home performance (Energy Star), solar (PECO initiative) (2)
- Skills/interest that are relevant to the business' future
- Agility/flexibility; continuous learner; increased engagement
- Tenacity of spirit/work ethic
- Communication/team/networking/collaboration

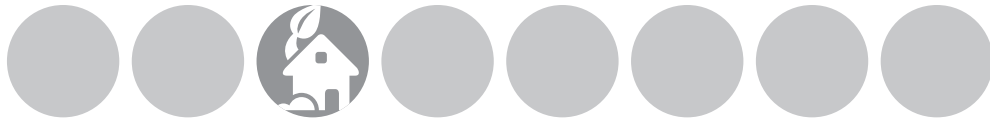
LARGER BUSINESS

Ranked technical and soft skills together – no numbers here indicates these were not ranked as top importance

- Willingness/desire to learn
- Communication



photo courtesy of the Energy Coordinating Agency



Important Skills for New Employees – Technical Skills

SMALL BUSINESS

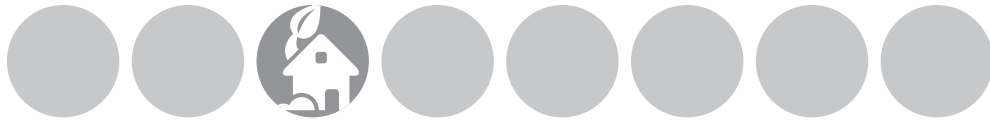
Numbers indicate which they ranked as most important within this category

- Systems understanding: technical expertise and holistic understanding: “building science” (5)
- Social and environmental understanding and business acumen (4)
- Carpentry (2)
- HVAC (1)
- Plumbing (1)
- Commercial vs. residential skill differentiation (1)
- Finance/tax research knowledge (1)
- Math (1)
- Return on investment (ROI) focus (1)
- Solar panel installation and broader understanding – “forest and trees”
- Weatherization
- Project management
- Electric
- Performance testing
- Benchmarking (comparing facility energy usage)

LARGER BUSINESS

Ranked technical and soft skills together –numbers indicate which they ranked as most important

- STEM (Science, Technical, Engineering – design understanding, Math) (4)
- “Universal” training for complete weatherization skill set (drywall, framing, windows) (1)
- Computer literacy, software skills
- Marriage of computer technology and mechanical skills



**Working with Public Workforce Agencies—
What would it take to increase your use of these? (Small Business Group)**

- A data base with indexing of skills (7)
- Awareness and information about access (4)
- Standardization of language about skills and certifications (3)
- Posting space/single point of contact (collection of relevant resumes) (3)
- Businesses can refer people to agencies when they get inquiries (1)
- Understand bureaucracy
- Refinement of skills (e.g. carpentry)
- Assessment of my business – filter the employee pool to match my business
- Representative to assess human capital needs
- Assurance that workers have deeper understanding of green/sustainability

**Recruitment of Employees—
Where do new employees come from? (Larger Business Group)**

- Philadelphia Carpenters Union Hall
- Workforce system (PWDC)
- Word-of-mouth (referrals from current employees)
- Unions (steamfitters, electricians)
- Ads (newspapers)

What training have new employees received? (Larger Business Group)

- Through Union programs (apprenticeships)
- Orleans Technical Institute
- DCCC training program
- LEED certified
- PE's
- Certified energy managers (Association of Energy Engineers)
- Energy curricula at Rowan, Philadelphia Community College



Programs/Policies that have impacted your business

SMALL BUSINESS

Numbers indicate which they ranked as most important within this category

- Reinvestment Act—incentives to “green” (6)
- December 2010 deregulation of utilities (4)
- LEED requirements for municipalities (2)
- CDC investment in job training (2)
- Act 129—municipal reduction 10% (2)
- Tax incentives (grant \$) (1)
- Policies that offset capital expenditures (1)
- Lift on cap for solar expenses
- New technology now paying for itself – subsidies, incentives
- State grants for small business and municipalities (holistic approach to reduction)
- Harvest Grant
- Corporate environmental policies
- Storm water management (municipal)
- President’s Climate Commitment (colleges/universities)
- Increased public awareness
- Changing military policies
- Clean Energy Act—cap and trade
- Renewable Portfolio Standard—scaled down?



LARGER BUSINESS

Numbers indicate which they ranked as most important within this category

Actual Programs (past/present)

- Act 77—fiscal tool for capital improvements, state funding for energy service contractors, state and municipal buildings (built in training programs) (3)
- Act 129—electrical rebate program (begins 11/09) for appliances/PUC agreements with power companies (2)
- ARRA (Recovery Act)—residential/ light commercial, industrial, federal gives funds to state to distribute, e.g. schools
- PECO training of end users on energy efficiency (“Energy Education”)
- Penn Future energy education programs and rebate programs
- Conservation service providers—businesses credentialed as CSPs, bridge industry and consumers which increases end user understanding of homes and buildings as systems

FUTURE/DESIRED PROGRAMS

- College—level training, degrees that support/prepare skilled trades (4)
- Broader implementation of basic skills certification (1)
- Emergence of new systems specialist class of worker/project manager that might be a future driver of a union shift



photo courtesy of the Energy Coordinating Agency



Growth Factors: What factors are enhancing business growth in your industry?

SMALL BUSINESS

Numbers indicate which they ranked as most important within this category

- Increased public awareness, motivation (6)
- New technology (on demand hot H2O, solar heating is no longer exotic) (3)
- Incentives (2)
- “Buy local” movement (2)
- New generation of banks starting to understand and offering incentivizing loan programs (2)
- K-12 education curricula (1)
- Recession – culture shift
- Government hand-holding increasing for first steps
- Some municipalities requiring energy efficiency audits vis-à-vis home sales (inspections)
- Smart meters—property operation information and feedback

LARGER BUSINESS

Ranked “enhance growth” and “impede growth” factors together –numbers indicate which they ranked as most important

- Personal experience with energy, dollar savings—drives corporate/organizational adoption of changes (2)
- Immediate dollar savings (1)
- Rebates, incentives—support investment in longer run savings
- Education, awareness—emerging among broader public
- Available, affordable—commercially viable technology



Growth Factors: What factors are impeding business growth in your industry?

SMALL BUSINESS

Numbers indicate which they ranked as most important within this category

- Recession = lack of dollars, fear (8)
- Public misinformation (4)
- Not understanding how to execute/implement (1)
- Market/investment behind the curve—asset valuation lag and lending/mortgage/bank industry lag and fear of overvaluing green changes (1)
- Public information disconnect to small business
- Length of payback period
- Inertia in building industry

LARGER BUSINESS

Ranked “enhance growth” and “impede growth” factors together – numbers indicate which they ranked as most important

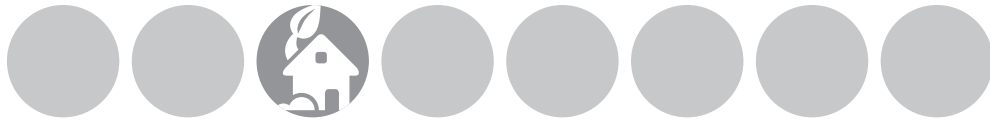
- Minimization of skilled trades as a viable, valued career choice (5)
- Lack of skilled workforce, under-educated high school graduates, e.g. decreasing STEM skills
- Non-local service providers without skills/training



Examples of Success: Workforce Training Program Grads

Each training organization person gave a specific example. The factors overlapped so they are all listed together with an * when mentioned multiple times

- This opportunity served as a gateway for upward mobility *
- On-going counseling/guidance *
- Increased self-awareness, self-worth, personal responsibility *
- Feedback from business when issues come up for individual employees *
- Simultaneous management of multiple tasks, responsibilities, personal changes *
- Entrepreneurial outlook of the worker—have it or learn it *
- Mutual (organization/business) facilitation of hiring process *
- Agency connection to business informs training curricula *
- On-going connection to neighborhood center for range of services *
- Connection to entry-level position with business partner
- Phased approach with increasing opportunities
- Trainee assumes responsibility for program costs
- Customer service skills
- Have to get driver's license
- Take initiative on the job
- Guide them to self-assess their success factors
- Deliberate career pathways programming
- Pursuit of multiple certifications, training, degrees
- Partnership with additional training opportunities (e.g. CCP)
- Cross-over skills acquisition (e.g. OSHA)—survey course approach exposes trainees to multiple skills, pathways
- Environmental literacy
- Business reps teach courses—businesses get to observe potential candidates in class prior to hire
- Financial literacy
- Business familiarity with training, businesses send employees
- Programs support upward mobility (i.e. phased programs, supervisory training)



Examples of Success: Business New Hires

Each business person gave a specific example of a successful new hire — they are broken out by each story.

(STORY 1)

- Had strong work ethic
- Willingness to take on multiple, varied tasks (“do anything I asked him to”)
- High standard of task completion
- Was required to enter labor system, did so successfully
- That added restrictions (and limited which jobs he could work on)
- Ran into problems keeping up with union dues and then was not eligible to work

story 1

(STORY 2)

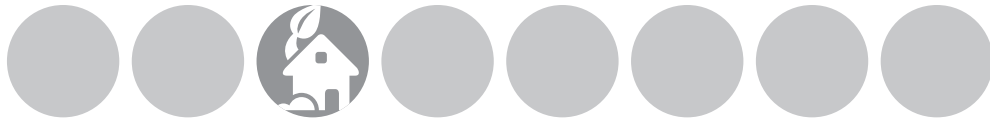
- Potential hire had strong IT skills (formal training and informal experience/projects)
- An in-depth interview revealed additional skills (not aware of from application/resume)
- Hiring person made an effort to cultivate an appropriate position, waiting for position, keeping him in the pipeline
- Was able to show IT experience
- Position finally opened and he was hired

story 2

(STORY 3)

- College grad with electrical/mechanical engineering background
- Skill alignment with retrofit needs
- Understanding of market, holistic comprehension of energy efficiency opportunities
- Local (city-endorsed)

story 3



Where are alignments?

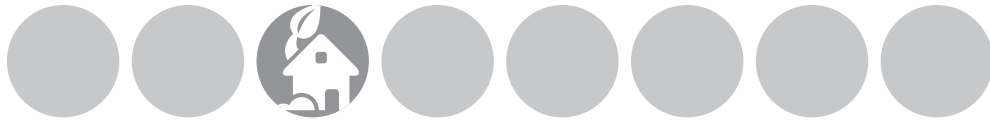
- Transferable skills (e.g. from helicopter blades to windmills)
- Training programs that have formal employee relationships

Where are the gaps?

- Bridge to subcontractors that informs them about access to jobs and specific requirements for jobs (i.e. bonding, insurance)
- Educate City procurement about Green Jobs (beyond the basic guidelines)
- Green Education – for consumers and contractors, including tax education
- “Green collar” terminology is misleading and can be restricting, need to understand breadth of green beyond weatherization
 - Need increased awareness of transferability

What can be done to improve alignments?

- Public awareness campaigns
 - Training of spokespeople – these can be jobs such as Energy Educator
 - 13 Energy centers around the city
 - PECO/Act 129 will stimulate education
- Educate private sector on benefits of “going green”
- Increased specificity about “green” opportunities, jobs, evolution, retrofit
 - Need definitions and differentiation
 - Use broader language/concepts of “conservation”
- Continue building career pathways
- Increased access of workforce to wrap-around social services
 - Workforce agencies partners with CBOs, support services, colleges
- Build on prior skill sets
- Green Education Fair
 - Employers
 - Trainers
 - Social service agencies



Miscellaneous Notes from Large Business Session

- “Universal” training (community college, apprenticeships) to encompass complex skill sets required for new technologies—need trade union buy-in, especially in Philadelphia
- Training must evolve faster for labor to stay competitive
- Jurisdiction over new technology install and maintenance is challenging to determine
- Need for continuing education partnerships with industry
- Challenge: early identification and evolution of training needs, entering workforce skills
- Need marriage of union apprenticeships, community college curricula, technical training, e.g. steamfitters curriculum (Drexel)