

David A. Paterson, Governor  
M. Patricia Smith, Commissioner

# New York State's Clean Energy Industry:

# Labor Market and Workforce Intelligence

May 2009



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## EXECUTIVE SUMMARY

This report has been prepared in response to the First Report of the Renewable Energy Task Force to then Lieutenant Governor David A. Paterson, *Clean, Secure Energy and Economic Growth: A Commitment to Renewable Energy and Enhanced Energy Independence* (February 2008), which directed the New York State Department of Labor (NYSDOL)...

*... to immediately undertake an inventory of existing workforce training programs and streamline such efforts to utilize existing resources in the most optimal manner.*<sup>1</sup>

This directive is addressed from the perspective of three primary objectives of public investment in clean energy jobs.

- ♦ Stimulate Job Creation / Job Retention – provide capital investment in manufacture, installation, production and maintenance across the entire supply chain that supports the clean energy industry.
- ♦ Support Workforce Development – provide workers with the requisite knowledge, skills and abilities to allow business productivity to be competitive in a global economy and to assure business output achieves quality and efficiency expectations.
- ♦ Advance Pathways Out of Poverty.

The current economic landscape is too dynamic and evolving to accurately estimate the number of jobs in New York State’s clean energy industry. However, the results of this report indicate that the clean energy industry largely employs workers with the same skills as other related businesses; compete in the same labor markets; and are affected by the same labor supply/demand relationships. So while new occupational titles will emerge for the clean energy industry, the skills for the vast majority of these occupations will be very similar to existing job titles, with incremental skill enhancements specific to the industry. This intelligence is sufficient to immediately advance clean energy jobs in New York State. In addition, the American Recovery and Reinvestment Act of 2009 (ARRA) provides substantial funding to support job creation and workforce development in the state’s clean energy industry.

Also relevant to this report are the ongoing, transparent, genuinely willing, and often passionate state-level collaborations on renewable energy and enhanced energy independence. The collaboration extends across members of the following state-level initiatives: the Workforce Development and Training Working Group established under the state’s Energy Efficiency Portfolio Standard; the Interagency Environmental Justice Task Force; the Renewable Energy Portfolio Standard; the Regional Greenhouse Gas Initiative; the state’s participation on the National Governor’s Association (NGA) Policy Academy on State Sectors Strategies; and most recently strategies on implementing the ARRA. These efforts have prepared the state to immediately and successfully understand, respond to, nurture and grow the clean energy sectors identified by the Renewable Energy Task Force and the ARRA.

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<sup>1</sup> *The First Report of the Renewable Energy Task Force*, Section Four: Creating a Green Collar Workforce, February 2008 (page 26).

## Clean Energy Jobs: Definition & Scope

Current literature on the jobs associated with “green” (i.e., jobs associated with improving environmental quality and health) is best characterized by the following statement.

***“Green jobs” and “Green-Collar jobs” are evocative and potentially galvanizing terms; they are also notoriously ambiguous.***<sup>2</sup>

The ambiguity stems from the all-encompassing and un-standardized nature of the “green” market-place, which impedes establishing a universally accepted definition of green jobs and/or green-collar jobs. In addition, studies on green jobs and/or green-collar jobs illustrate an important characteristic of clean energy jobs ...

***Most clean energy jobs are not unique to the clean energy industry, and require the same range of education, skills and earnings as jobs in other energy sectors, and jobs in the construction and manufacturing industries.***<sup>3</sup>

Therefore, the scope of the definition of green jobs and/or green-collar jobs for this report is to address the full range of jobs in the priority clean energy sectors identified by the Renewable Energy Task Force report, which include:

- Solar – Solar Electric / Photovoltaic and Solar Thermal;
- Wind Turbine;
- Renewable Fuels – Bio-Diesel and Ethanol; and Sustainable Materials Management (Bio-Mass / Forestry management); and
- Energy Efficiency / Weatherization.

The scope of the definition of clean energy jobs also recognizes the “Good Jobs, Green Jobs” movement of social justice, environmental justice, environmental advocates and organized labor ... that the jobs created by advancing the clean energy industry also create “pathways out of poverty” (i.e., a pathway into a career ladder to family sustaining wage positions) for individuals in economically and environmentally disadvantaged communities – a priority of Governor Paterson. In this regard, the definition of green-collar job advanced by the Apollo Alliance is relevant.<sup>4</sup>

*Every green-collar job advances two simultaneous and complementary goals: 1) improving the environment; and 2) rebuilding a strong American middle class.*

*Green-collar jobs are good paying, career track jobs that contribute significantly to preserving or enhancing environmental quality. Like blue-collar jobs, green collar jobs range from low-skill, entry level positions to high-skill, higher-paid jobs, and include opportunities for advancement in both skills and wages.*

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<sup>2</sup> ***Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy***, A report by Sarah White & Jason Walsh, Center on Wisconsin Strategy, The Workforce Alliance, The Apollo Alliance, 2008.

<sup>3</sup> For example, see Bezdek, R., ***Renewable Energy and Energy Efficiency: Economic Drivers for the 21st Century***, American Solar Energy Society, 2007.

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*Green-collar jobs also tend to be local jobs because they focus on transforming the immediate natural and built environment – retrofitting buildings, installing solar panels, constructing transit lines, growing energy crops, etc.*

In responding to pathways out of poverty, it is of critical importance to recognize that a job alone does not remediate “employment barriers” which impede/prevent employment retention and advancement in the labor market faced by most economically disadvantaged individuals. Employment barriers confronting economically disadvantaged individuals include but are not limited to: criminal records; probation requirements; drug use; work-readiness skill deficiency; English deficiency; reading, math and science deficiency; basic mechanical and technical skill deficiency; lack of transportation; lack of child care; and domestic violence.

### **Report Overview**

This report addresses three key aspects of clean energy jobs in New York State.

- Labor Market Characterization – Describing the labor market characteristics of the state’s priority clean energy sectors, including staffing patterns, skill requirements, earnings, career ladder opportunities, occupational trends and labor supply/demand assessment.
- Workforce Development and Training – Identifying an inventory of existing training programs that support the priority sectors; and identifying barriers to training, including barriers facing low income individuals and communities of color.
- State Level Collaboration.

The report concludes with recommendations; some of which are already being addressed and some of which need further attention.

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## INTRODUCTION

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*... to immediately undertake an inventory of existing workforce training programs and streamline such efforts to utilize existing resources in the most optimal manner.*<sup>1</sup>

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- ♦ Stimulate Job Creation / Job Retention – provide capital investment in manufacture, installation, production and maintenance across the entire supply chain that supports the clean energy industry.
- ♦ Support Workforce Development – provide workers with the requisite knowledge, skills and abilities for business productivity to be competitive in a global economy and to assure business output achieves quality and efficiency expectations.
- ♦ Advance Pathways Out of Poverty.

Also relevant to this report are ongoing state level collaborations on renewable energy and enhanced energy independence, and implementation of the American Recovery and Reinvestment Act of 2009 (ARRA).

### Clean Energy Jobs: Definition & Scope

Current literature on the jobs associated with “green” (i.e., jobs associated with improving environmental quality and health) is best characterized by the following statement.

*“Green jobs” and “Green-Collar jobs” are evocative and potentially galvanizing terms; they are also notoriously ambiguous.*<sup>2</sup>

The ambiguity stems from the all-encompassing and un-standardized nature of the “green” market-place, which impedes establishing a universally accepted definition of green jobs and/or green-collar jobs. In addition, studies on green jobs and/or green-collar jobs illustrate an important characteristic of clean energy jobs.

*Most clean energy jobs are not unique to the clean energy industry, and require the same range of education, skills and earnings levels as jobs in other energy sectors, and jobs in the construction and manufacturing industries.*<sup>3</sup>

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Therefore, the scope of the definition of clean energy jobs for this report is the full range of occupations in the priority clean energy sectors identified by the Renewable Energy Task Force, which include:

- Solar – Solar Electric / Photovoltaic (PV) and Solar Thermal;
- Wind Turbine;
- Renewable Fuels – Bio-Diesel and Ethanol; and Sustainable Materials Management (Bio-Mass / Forestry management); and
- Energy Efficiency / Weatherization.

### ***Pathways Out of Poverty***

The scope of the definition of clean energy jobs for this report also recognizes the “Good Jobs, Green Jobs” movement of social justice, environmental justice, environmental advocates and organized labor ... that the jobs created by advancing the clean energy industry also create a “pathway out of poverty” (i.e., a pathway into a career ladder to family sustaining wage positions) for individuals in economically and environmentally disadvantaged communities – a priority of Governor Paterson. In this regard, the definition of green-collar job advanced by the Apollo Alliance is relevant.<sup>4</sup>

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## **Report Overview**

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- Workforce Development and Training – Identifying an inventory of existing training programs that support the priority sectors; and identifying barriers to training, including barriers facing low income individuals and communities of color.
- State Level Collaboration.

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The report concludes with recommendations; some of which are already being addressed and some of which need further attention.

## **LABOR MARKET CHARACTERISTICS**

### **Methodology**

The methodology used to identify labor market characteristics of the priority clean energy sectors (Solar, Wind, Renewable Fuels and Energy Efficiency) relies heavily upon industry and occupation classification systems used by federal statistical agencies (e.g., U.S. Census Bureau, the Department of Labor's Occupational Safety and Health Administration, and the Bureau of Labor Statistics). These are:

- Industry classification – The North American Industry Classification System (NAICS) is used to classify business establishments for the collection, analysis, and publication of statistical data related to the business economy of the U.S. It assigns business establishments a 6 digit code according to their industry.
- Occupation classification – The Standard Occupational Code (SOC) system is used to classify workers into occupational categories for the purpose of collecting, calculating and/or disseminating data. All workers are classified into one of over 820 occupations according to their occupational definition.

At this time, a systematic methodology to specifically differentiate occupational activity related to the clean energy sectors based on current NAICS industry and SOC classification systems is not available. The U.S. Department of Labor, Bureau of Labor Statistics has modified the 2010 SOC system to include solar photovoltaic installers (SOC 47-2231) and wind turbine service technicians (SOC 49-9081), but this data will not be available until after 2010. For example:

- NAICS classifies a solar panel installer/contractor the same as all plumbing, heating and air conditioning installers/contractors. Similarly, the NAICS code for a solar cell manufacturer is the same as all semiconductor device producers.
- SOC classifies a wind turbine installer as an industrial machinery mechanic, rather than distinguishing between different kinds of industrial machinery.

Therefore, the methodology for identifying the labor market characteristics of New York State's clean energy sectors is based on the following three elements.

1. Identify businesses operating in each sector in New York State.
2. Identify the NAICS codes and SOC codes associated with businesses in the sector.

To obtain a NAICS code (and employer registration number), each clean energy business name was manually queried (one-by-one alpha search) against confidential data of firms covered by unemployment insurance.

Quarterly Census of Employment and Wages (QCEW) data was then used to obtain:

- Total employment (2002 and 2007);
- Total wages (2002 and 2007);

- Geographic information (addresses, counties); and
- Each company's 6-digit NAICS industry description.

Occupational Employment and Wage Survey (OES) data was then used to obtain:

- Primary occupations making up more than 1% of the sector staffing;
  - Staffing pattern for the sector;
  - Wages (statewide, median, entry and experienced);
  - Skill requirements for the occupation; and
  - Occupation outlook (i.e., worker demand and supply).
3. Present the labor market characteristics of each sector based upon the identified NAICS code for each sector, and the staffing (occupations) associated with those industries. The rationale being that industries with the same NAICS code would typically have similar occupations, labor-sheds and workforce needs.

The labor market characteristics identified include:

- a. The types of occupations common to the sector by:
  - i. SOC;
  - ii. Lay Titles – An occupational title associated with SOC which may be more commonly used by business, or may be more relevant to the type of work done in sector; and
  - iii. Emerging Titles – Common occupational titles used in the sector, as defined in the *Green Jobs Guidebook*, produced by the Environmental Defense Fund for the state of California.
- b. Staffing patterns – The percentage of workers in each occupation for the sector.
- c. Wages
  - i. Median – The median wage in an occupation; one half of the wages are higher and one half of the wages are lower.
  - ii. Entry – The mean (average) of the bottom third of wages in an occupation.
  - iii. Experienced – The mean (average) of the top two-thirds of wages in an occupation.
- d. Typical Training and Education Requirements – as defined by the US Bureau of Labor Statistics, where each occupation falls into one of 11 categories based on the amount of education, on-the-job training (OJT) and work experience required. The categories are:
  - i. First professional degree, such as one from a medical school or law school;
  - ii. Doctoral degree;
  - iii. Masters degree;

- iv. Bachelor or higher degree, plus work experience;
  - v. Bachelor degree;
  - vi. Associate degree;
  - vii. Postsecondary vocational award, such as from an apprenticeship;
  - viii. Work experience in a related occupation;
  - ix. Long-term on-the-job training – more than one year of training;
  - x. Moderate-term on-the-job training – between one month and one year of training; and
  - xi. Short-term on-the-job training – less than one month of training.
- e. Education Cluster – Three levels of education held by current workers in an occupation. This system allows for an occupation to have multiple classifications, depending on the educational attainment of the workers. The three levels are:
- i. High School (HS) – refers to having a high school diploma or less;
  - ii. Some College (SC) – refers to any amount of college education short of a Bachelor degree, and;
  - iii. College (C) – refers to a Bachelor degree or higher.
- f. Career ladder opportunities – Categorization of the occupations into the following three categories.
- i. Entry level – Requiring little to no education, training, or experience; often involves physical labor exclusively. Entry-level skill occupations typically require a high school diploma/GED equivalent and less than one month of job training (short-term OJT).
  - ii. Mid level – Requiring a modest amount of education, training, or experience. Mid-level skill occupations typically require from one month up to one year of training (moderate-term OJT) or post secondary vocational training.
  - iii. High level – Requiring a high amount of education, training, or experience; often a supervisory position or the end result of an apprenticeship. High-level skill occupations typically require over one year of training (long-term OJT), or college degrees (associates, bachelors, advanced degrees) and/or significant work experience.
- g. Worker Supply and Demand Assessment – Assessing estimated job openings against the available supply of labor participating in the state’s Workforce New York One-stop system. This labor supply includes individuals who are receiving state Unemployment Insurance benefits, and other adult and dislocated workers receiving career development services and training from the One-stop.

Based upon this methodology, labor market characteristics are presented for each of the following six clean energy sectors in New York State:

1. Solar manufacturing;
2. Solar installation;
3. Wind turbine manufacturing;
4. Wind turbine installation;
5. Weatherization; and
6. Energy service companies.

Note that, renewable fuels are not included in the list because little data is available to develop reasonable characteristics. Renewable fuels will be addressed in subsequent work.

## **Business Characteristics**

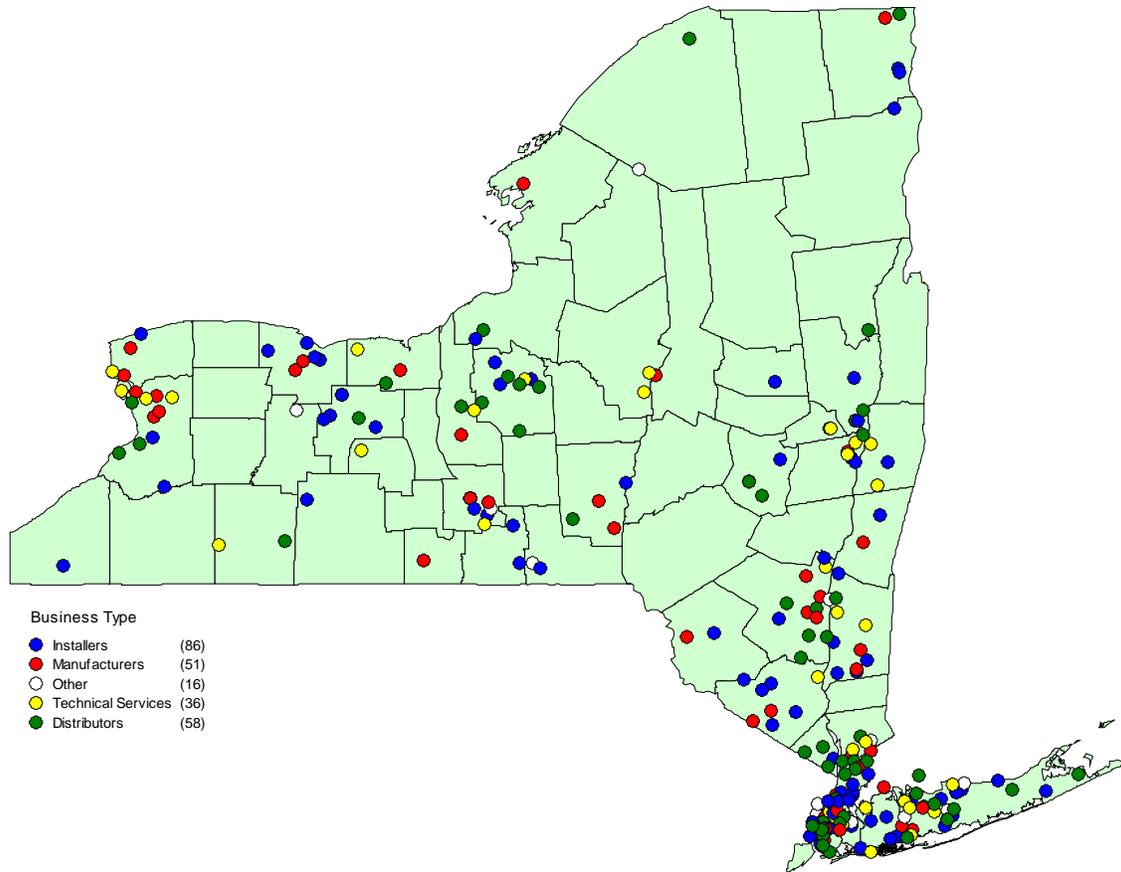
A master list of over 2,500 New York State businesses involved in the production, distribution, consultation, architecture and installation of green/clean products was obtained from a variety of sources, including lists developed by existing organizations, industry association web sites, existing studies/publications, and projects funded by the New York State Energy Research and Development Authority (NYSERDA).

Of these, approximately 250 businesses were identified across the vertical spectrum of the state's clean energy industry – from highly technical companies that develop and design systems, to product manufacturers, to distribution and marketing networks, and to contractors responsible for installation/maintenance of the products and systems. Of the 250 businesses: 35% were installers; 23% were distributors; 21% were manufacturers; and 15% provided technical services.

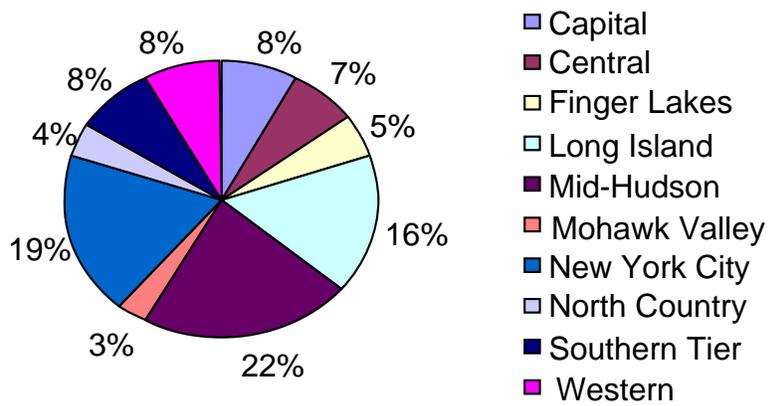
Figure 1 presents a New York State map depicting the location of the 250 businesses by business type. A listing of the businesses by business type and product line is presented in **Appendix A: Table A-1**.

Figure 2 presents the percentage of these businesses in each region. As shown, 57% of the businesses are located in the “lower” part of the state including the Hudson Valley Region (22%), New York City (19%) and Long Island (16%). Upstate, the share of businesses was, for the most part, evenly distributed among regions.

**Figure 1 – Location of Businesses Used in the Methodology, by Business Type**



**Figure 2 – Distribution of Clean Energy Businesses by Region**



Additional research on 140 of these businesses found them to be “high value” – collectively employing approximately 5,200 workers in 2007 with an aggregate payroll of \$397.2 million. This equates to an annual average wage per worker of \$76,421 – which is \$17,000 or 29% higher than the all-industry average for New York State.

*Appendix A*, Table A-1 shows New York State employment activity of the businesses associated with the NAICS codes for each of these sectors. This is not an estimate of employment in the specific sector, but rather employment activity of the businesses similar to these sectors. However, the weatherization sector closely reflects actual employment activity related to improving home and business energy efficiency in New York State. With more than 11,000 firms and 92,500 jobs in 2007 – employment in weatherization related industries soared 13,600 or 17% over the previous five years. The average wage per worker stood at \$56,398 per year.

## **NAICS Mapping**

The following provides examples of the NAICS mappings for solar, wind and energy efficiency/weatherization.

### ***Solar Technology – Installation and Manufacturing***

Solar Technology transfers the sun’s power into electricity or heat through:

- Solar Electric / Photovoltaic (PV) devices – which convert the sun’s energy directly to electricity; and
- Solar Thermal devices – which concentrate the sun’s rays to produce heat, usually for living space or water.

Construction businesses involved in the installation of solar equipment are concentrated in the plumbing, heating, electrical and air conditioning contracting (NAICS 2382).

Solar manufacturing is involved in the production of PV equipment, solar thermal devices and related components. Most of this activity in New York State is centered in semiconductor manufacturing (NAICS 3344), instruments for measuring electricity (NAICS 3345), lighting fixtures (NAICS 3351) and heating equipment (NAICS 3334).

### ***Wind Energy – Installation and Manufacturing***

Wind energy is the fastest growing alternative energy source in the country according to the U.S. Department of Energy. Major activities within this sector include blade, turbine and gear manufacturing and tower/turbine installation. Wind towers also create a need for maintenance services that clean blades, conduct repairs and maintain grid-connected power lines. Professional services to conduct wind assessments, mapping and environmental impact studies are also expanding. In New York State, production activity is concentrated in turbine/generator manufacturing (NAICS 3336); installation/maintenance is centered in power structure construction (NAICS 2371) and professional activity in environmental consulting (NAICS 5416).

### ***Energy Efficiency / Weatherization***

Efforts to increase energy efficiency in residential and commercial buildings, which includes retrofits and weatherization, will generate new employment opportunities. Retrofits involve

upgrading or replacing lights, heating and cooling systems, insulation, windows and other components of an existing building to facilitate less energy use. Weatherization activity specifically focuses on the lowering of heating and cooling bills at home and businesses, including insulation, improving furnace systems, reducing air flow, repairing chimneys, installing control/flow devices and improving lighting systems. Energy audits are an important and necessary function of the energy efficiency process. New York State businesses involved in energy efficiency are primarily classified as plumbing, heating and air conditioning contractors (NAIC 2382), insulation contractors and window/door installation (NACIS 2383).

### ***Energy Service Companies***

An Energy Service Company (ESCO) develops, installs and finances projects designed to improve energy efficiency and maintenance costs for facilities over a 7 to 20 year time period. ESCOs generally act as project developers for a wide range of tasks and assume the technical/performance risk associated with the project. What sets ESCOs apart from other firms that offer energy improvements is the concept of performance-based contracting. When an ESCO undertakes a project, compensation and often project financing, are directly linked to the amount of energy that is actually saved. ESCOs are concentrated in engineering services (NAICS 5413) and energy consulting services (NAICS 5416).

## **Occupational Analysis**

The current economic landscape is too dynamic and evolving to accurately estimate the number of jobs in New York State's clean energy industry. However, the results of this report illustrate an important characteristic of clean energy jobs ... that most clean energy jobs are not unique to the clean energy industry, and require the same range of education, skills and earnings as jobs in other energy sectors, and jobs in the construction and manufacturing industries. For example, construction companies installing solar equipment or retrofitting buildings will need workers with traditional construction skills and incremental specialized skills in solar or energy efficiency. So while new occupational titles will emerge for the clean energy industry, the skills for the vast majority of these occupations will be very similar to existing job titles, with incremental skill enhancements specific to the industry.

This intelligence is sufficient to immediately advance clean energy jobs in New York State. In addition, the American Recovery and Reinvestment Act of 2009 (ARRA) provides substantial funding to support job creation and workforce development in the state's clean energy industry.

The remainder of this section presents an occupational analysis based on the labor market data presented in *Appendix B* through *Appendix G*. The data presented includes:

- ♦ The types of occupations common to the sector;
- ♦ Staffing pattern;
- ♦ Wages;
- ♦ Typical training and education requirements;
- ♦ Education cluster;
- ♦ Career ladder opportunities; and
- ♦ Worker supply and demand assessment.

## Solar Installation

The occupational analysis of New York State’s Solar Installation sector is based on the labor market data presented in **Appendix B**:

- ♦ Table B1 – Solar Installation Common Occupations and Associated Skills.
- ♦ Table B2 – Solar Installation Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table B3 – Solar Installation Common Occupations: Labor Supply and Demand.

Construction businesses involved in solar installation and maintenance will employ a similar workforce to traditional HVAC contractors, but will require certification for electricians and advanced knowledge for other workers regarding solar theory and practice. Entry-level jobs include electrician and plumber helpers, installation workers, material movers and light truck drivers. Common mid-level skill jobs include construction laborers, maintenance/repair workers and sales representative. The majority of positions are in high-level skill occupations including journey construction trades, supervisors, cost estimators and managers.

Table 1 presents select solar installation occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in **Appendix B**, Table B3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 1 – Solar Installation Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry-Wage	Training Requirements
Electrician Helpers	140	\$22,560	Short-Term OJT
Plumber Helpers	150	\$21,210	Short-Term OJT
Light Truck Drivers	1,160	\$19,160	Short-Term OJT
Construction Laborers	1,190	\$25,980	Moderate-Term OJT
Sales Representatives	2,670	\$32,790	Moderate-Term OJT
Gen. Maintenance & Repair Workers	780	\$24,390	Moderate-Term OJT
First-Line Supervisors/Managers Of Construction Trades	900	\$47,610	Work Experience
Cost Estimators	390	\$39,010	Work Experience
Electricians	1,580	\$37,280	Long-Term OJT
Plumbers, Pipefitters, Steamfitters	1,070	\$35,360	Long-Term OJT
HVAC Mechanics/Installers	450	\$29,420	Long-Term OJT
Sheet Metal Workers	240	\$30,750	Long-Term OJT
Welders, Cutters, Solderers, Brazers	220	\$24,960	Long-Term OJT
Construction Managers	760	\$67,870	Bachelor Degree
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
General/Operations Managers	2,310	\$63,320	Bachelor plus Work Experience

## ***Solar Manufacturing***

The occupational analysis of New York State’s Solar Manufacturing sector is based on the labor market data presented in ***Appendix C***:

- ♦ Table C1 – Solar Manufacturing Common Occupations and Associated Skills.
- ♦ Table C2 – Solar Manufacturing Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table C3 – Solar Manufacturing Common Occupations: Labor Supply and Demand.

Production of solar photovoltaic and thermal equipment involves assembly, inspection, and quality control skills found in traditional manufacturing industries. Entry-level positions are primarily focused at assembly, stock and material moving functions. Middle-skill jobs involve machine operation and inspection. High-skill occupations include mechanics, technicians and metal-working tasks.

Table 2 presents select solar manufacturing occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in ***Appendix C***, Table C3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 2 – Solar Manufacturing Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry-Wage	Training Requirements
Industrial Truck and Tractor Operators	490	\$22,780	Short-Term OJT
Shipping/Receiving/Traffic Clerks	990	\$19,270	Short-Term OJT
Electrical/Electronic Equip. Assemblers	220	\$18,880	Short-Term OJT
Hand Packers	390	\$16,120	Short-Term OJT
General Maintenance/Repair Workers	780	\$24,390	Moderate-Term OJT
Coating, Painting & Spraying Setters, Oper./Tenders	50	\$21,590	Moderate-Term OJT
Computer-Controlled Machine Tool Operators	50	\$22,560	Moderate-Term OJT
Supervisors of Production Workers	480	\$36,180	Work Experience
Purchasing Agents	310	\$39,850	Work Experience
Supervisors of Office Workers	2,230	\$36,910	Work Experience
Welders, Cutters, Solderers, Brazers	220	\$24,960	Long-Term OJT
Sheet Metal Workers	240	\$30,750	Long-Term OJT
Machinists	220	\$24,330	Long-Term OJT
HVAC Mechanics/Installers	450	\$29,420	Long-Term OJT
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
General/Operations Managers	2,310	\$63,320	Bachelor plus Work Experience

## ***Wind Installation***

The occupational analysis of New York State’s Wind Installation sector is based on the labor market data presented in ***Appendix D***:

- ♦ Table D1 – Wind Installation Common Occupations and Associated Skills.
- ♦ Table D2 – Wind Installation Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table D3 – Wind Installation Common Occupations: Labor Supply and Demand.

Construction businesses involved in wind installation primarily employ skilled workers who erect towers, install turbines and connect electricity to the grid. They may also be responsible for the upkeep of the wind turbines – including blade cleaning and repair work. Entry-level jobs include material movers and installation helpers while middle-skill work includes construction laborers, operating engineers, heavy truck drivers, cement masons and general maintenance and repair work. High skill jobs include the journey construction trades, structural iron/steel workers, mechanics, supervisors and administrative positions.

Table 3 presents select wind installation occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in ***Appendix D***, Table D3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 3 – Wind Installation Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry-Wage	Training Requirements
Construction Laborers	1,190	\$25,980	Moderate-Term OJT
Gen. Maintenance & Repair Workers	780	\$24,390	Moderate-Term OJT
Mobile Heavy Equipment Mechanics	90	\$31,140	Post Secondary Vocational Training
Cost Estimators	390	\$39,010	Work Experience
Supervisors of Construction Trades	900	\$47,610	Work Experience
Supervisors of Mechanics/Installers	560	\$44,540	Work Experience
Carpenters	2,000	\$30,270	Long-Term OJT
Welders, Cutters, Solderers, Brazers	220	\$24,960	Long-Term OJT
Electricians	1,580	\$37,280	Long-Term OJT
Structural Iron and Steel Workers	190	\$40,980	Long-Term OJT
Construction Managers	760	\$67,870	Bachelor Degree
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
General/Operations Managers	2,310	\$63,320	Bachelor plus Work Experience

## ***Wind Manufacturing***

The occupational analysis of New York State’s Wind Manufacturing sector is based on the labor market data presented in ***Appendix E***:

- ♦ Table E1 – Wind Manufacturing Common Occupations and Associated Skills.
- ♦ Table E2 – Wind Manufacturing Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table E3 – Wind Manufacturing Common Occupations: Labor Supply and Demand.

Major activities in wind manufacturing are involved in the production of blades, turbines and gearboxes or their component parts. Entry-level positions involve traditional production, material moving and stock clerk positions while middle-skill jobs are centered in machine operation and inspection skills. High-skill positions revolve around metal-working and administrative functions.

Table 4 presents select wind manufacturing occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in ***Appendix E***, Table E3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 4 – Wind Manufacturing Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry-Wage	Training Requirements
Shipping/Receiving/Traffic Clerks	990	\$19,270	Short-Term OJT
Industrial Truck and Tractor Operators	490	\$22,780	Short-Term OJT
Computer-Controlled Machine Tool Operators	50	\$22,560	Moderate-Term OJT
General Maintenance/Repair Workers	780	\$24,390	Moderate-Term OJT
Multiple Machine Tool Setters, Oper./Tenders	110	\$19,830	Moderate-Term OJT
Cutting, Punching & Press Mach. Setters, Oper./Tenders	180	\$19,790	Moderate-Term OJT
Supervisors of Production Workers	480	\$36,180	Work Experience
Purchasing Agents	310	\$39,850	Work Experience
Machinists	220	\$24,330	Long-Term OJT
Welders, Cutters, Solderers, Brazers	220	\$24,960	Long-Term OJT
Electricians	1,580	\$37,280	Long-Term OJT
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
General/Operations Managers	2,310	\$63,320	Bachelor plus Work Experience

## ***Weatherization***

The occupational analysis of New York State’s Weatherization sector is based on the labor market data presented in ***Appendix F***:

- ♦ Table F1 – Weatherization Common Occupations and Associated Skills.
- ♦ Table F2 – Weatherization Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table F3 – Weatherization Common Occupations: Labor Supply and Demand.

Activities related to weatherization are specifically focused at retrofitting residences and businesses to lower heating and cooling bills, as well as reducing energy usage. Workers conduct a wide range of tasks including installing insulation, improving furnace systems, reducing air flow through buildings, installing control devices on water heaters/appliances, reducing hot water flows and improving lighting systems. Entry-level positions include helpers of carpenters, electricians and installers. Mid-level jobs include insulation work, general maintenance/repair and construction laborer. High-skill positions include journey construction trades, estimators and HVAC mechanics/installers.

New York State’s Weatherization Assistance Program (WAP) is administered by the New York State Division of Housing and Community Renewal (DHCR), and is the largest residential energy conservation program in the country. The program receives funding from both the U.S. Department of Energy and the U.S. Department of Health and Human Services. In 2007-08 approximately \$55 million was allocated to 64 community-based organizations selected through an annual State planning process to provide weatherization services. Under the ARRA, DHCR received an additional \$394 million in WAP funding. Most weatherization agencies are organized by work crews – with small agencies comprised of 4 to 6 employees while large entities may have 40 to 60 workers.

Table 5 presents the basic weatherization career path of most WAP agencies. Note that small agencies may comprise only 4 to 6 employees, while larger agencies may have 40 to 60 employees depending on location and funding. Office administration is not included on this list.

**Table 5 – Weatherization Career Ladder (low skill to high skill)**

Job Title	Description
Installation Helper	
Installer	Minor carpentry, dense pack/loose fill insulation, sheet metal work, air sealing.
Crew Supervisor	All of the above plus: blower door operation; lead safety certification; handling all paperwork; job-site material; and set-up logistics.
Heat Tech (Separate from crew)	Heating efficiency testing, repairs and some installation (not available at some agencies).
Building Auditor	Audits single family and some multi-family buildings. Develops scope of work using computer modeling. Also performs post-audit inspections of projects.
Production Coordinator	Develops scheduling for projects; manages crews; procures materials and equipment.
Assistant Weatherization Director (Large Agencies)	
Weatherization Director	

Table 6 presents select weatherization occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in *Appendix F*, Table F3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 6 – Weatherization Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry-Wage	Training Requirements
Carpenter Helpers	380	\$19,070	Short-Term OJT
Electrician Helpers	140	\$22,560	Short-Term OJT
Construction Laborers	1,190	\$25,980	Moderate-Term OJT
Gen. Maintenance/Repair Workers	780	\$24,390	Moderate-Term OJT
Cost Estimators	390	\$39,010	Work Experience
Supervisors of Construction Trades	900	\$47,610	Work Experience
Supervisors of Mechanics/Installers	560	\$44,540	Work Experience
Carpenters	2,000	\$30,270	Long-Term OJT
Electricians	1,580	\$37,280	Long-Term OJT
Plumbers, Pipe fitter, Steamfitters	1,070	\$35,360	Long-Term OJT
Sheet Metal Workers	240	\$30,750	Long-Term OJT
HVAC Mechanics/Installers	450	\$29,420	Long-Term OJT
Welders, Cutters, Solderer, Brazer	220	\$24,960	Long-Term OJT
Construction Managers	760	\$67,870	Bachelor Degree
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
General/Operations Managers	2,310	\$63,320	Bachelor plus Work Experience

### ***Energy Service Companies***

The occupational analysis of New York State’s Energy Service Company sector is based on the labor market data presented in *Appendix G*:

- ♦ Table G1 – Energy Service Company Common Occupations and Associated Skills.
- ♦ Table G2 – Energy Service Company Common Occupations: SOC Titles, Lay Titles and Emerging Titles.
- ♦ Table G3 – Energy Service Company Common Occupations: Labor Supply and Demand.

Energy Service Companies (ESCOs) perform comprehensive energy retrofits that require a large initial capital investment and offer a relatively long payback period (7 to 20 years). Typically they offer the following services: develop, design, and finance energy efficiency projects; install and maintain the energy efficient equipment involved; measure, monitor, and verify the project’s energy savings; and assume the risk that the project will produce the same amount of energy guaranteed. Most ESCOs use contractors (such as HVAC businesses) that are directly or indirectly involved in the energy projects.

The occupational trends discussed here for ESCOs primarily reflect the high-end engineering and energy consulting services for these performance-based energy efficiency projects. The vast

majority of jobs are in high-skill occupations that require a bachelor degree – many of which are in high demand across a broad spectrum of industries.

Table 7 presents select ESCO occupations which are likely to have a “tight” labor supply relative to the available supply of labor participating in the state’s Workforce New York One-stop system (based upon the assessment in *Appendix G*, Table G3). A tight labor supply may be indicative of difficulty in filling positions or a shortage of qualified workers.

**Table 7 – ESCO Occupations Likely to Have a Tight Labor Supply**

Occupation	Projected Annual Openings	Entry Wage	Training Required
General Office Clerks	4,950	\$18,130	Short-Term OJT
Bookkeeping Clerks	3,300	\$25,130	Moderate-Term OJT
Construction/Building Inspectors	190	\$36,750	Work Experience
Construction Managers	760	\$67,870	Bachelor Degree
Accountants/Auditors	3,230	\$50,050	Bachelor Degree
Financial Analysts	780	\$56,430	Bachelor Degree
Computer Programmers	760	\$47,790	Bachelor Degree
Architects	370	\$50,470	Bachelor Degree
Electrical Engineers	210	\$55,620	Bachelor Degree
Electronics Engineers	140	\$58,150	Bachelor Degree
Environmental Engineers	200	\$50,310	Bachelor Degree
Mechanical Engineers	210	\$53,090	Bachelor Degree
Market Research Analysts	550	\$41,670	Bachelor Degree
General/Operation Managers	2,310	\$63,620	Bachelor plus Work Experience
Management Analysts	1,180	\$49,290	Bachelor plus Work Experience

## WORKFORCE DEVELOPMENT AND TRAINING

### Training Infrastructure

Much of the infrastructure for clean energy training (e.g., curriculum development, school start-up, school accreditation and industry certifications) is largely being developed under initiatives funded by NYSERDA, and includes community colleges, BOCES, labor unions, 4-year colleges, Local Workforce Investment Boards and national/regional energy associations.

- ◆ Since 2004, NYSERDA has provided solar electric (PV) installer training across the state. NYSERDA's Clean Energy Training Program began with a \$1 million investment to develop nationally accredited PV training facilities. At this time, New York State has four institutions with training programs that have been accredited by the International Institute for Sustainable Power: Hudson Valley Community College, SUNY Delhi, SUNY Farmingdale, and Bronx Community College. Other early providers of PV installer training include Ulster County BOCES, SUNY Alfred, and four International Brotherhood of Electrical Workers (IBEW) locals. Through the Fall of 2008, over 800 practitioners have been trained. In 2009, NYSERDA invested an additional \$4 million in six clean energy training teams consisting of 28 training centers. These teams include

community colleges, four-year colleges, building trades and BOCES, and will be offering training in solar water heating, PV, small and large wind, fuel cells and geothermal technology. NYSERDA emphasizes quality instruction and accreditation of training programs by independent, third party entities, when available. All PV and solar thermal installers are encouraged to pursue national certification by the North American Board of Certified Energy Practitioners.

- ♦ NYSERDA has also developed a network of ten residential energy-efficiency learning centers – called the Center for Energy Efficiency and Building Sciences (CEEBS). These learning centers – on par to train 1,000-1,500 practitioners annually – are located at Hudson Valley Community College, Onondaga/Cortland/Madison BOCES, Erie Community College, Bronx Community College, Broome Community College, Westchester Community College, Association of Energy Affordability (Bronx), Fulton-Montgomery Community College, SUNY Canton, and Onondaga Community College.

The state's community colleges and universities are also proactive in incorporating renewable and alternative energy technology into their existing trade programs. For example:

- ♦ Hudson Valley Community College recently received state approval to offer a five-course, 19-credit certificate program in photovoltaic installation. This certificate is offered through their School of Engineering and Industrial Technologies.
- ♦ SUNY Delhi also offers photovoltaic training courses as an extension of their existing curriculum in Electrical Construction and Maintenance. This allows a qualified electrician to become skilled in PV installation. Delhi also offers a credit-bearing course in introductory PV design/installation, as well as continuing education training for contractors and PV practitioners.

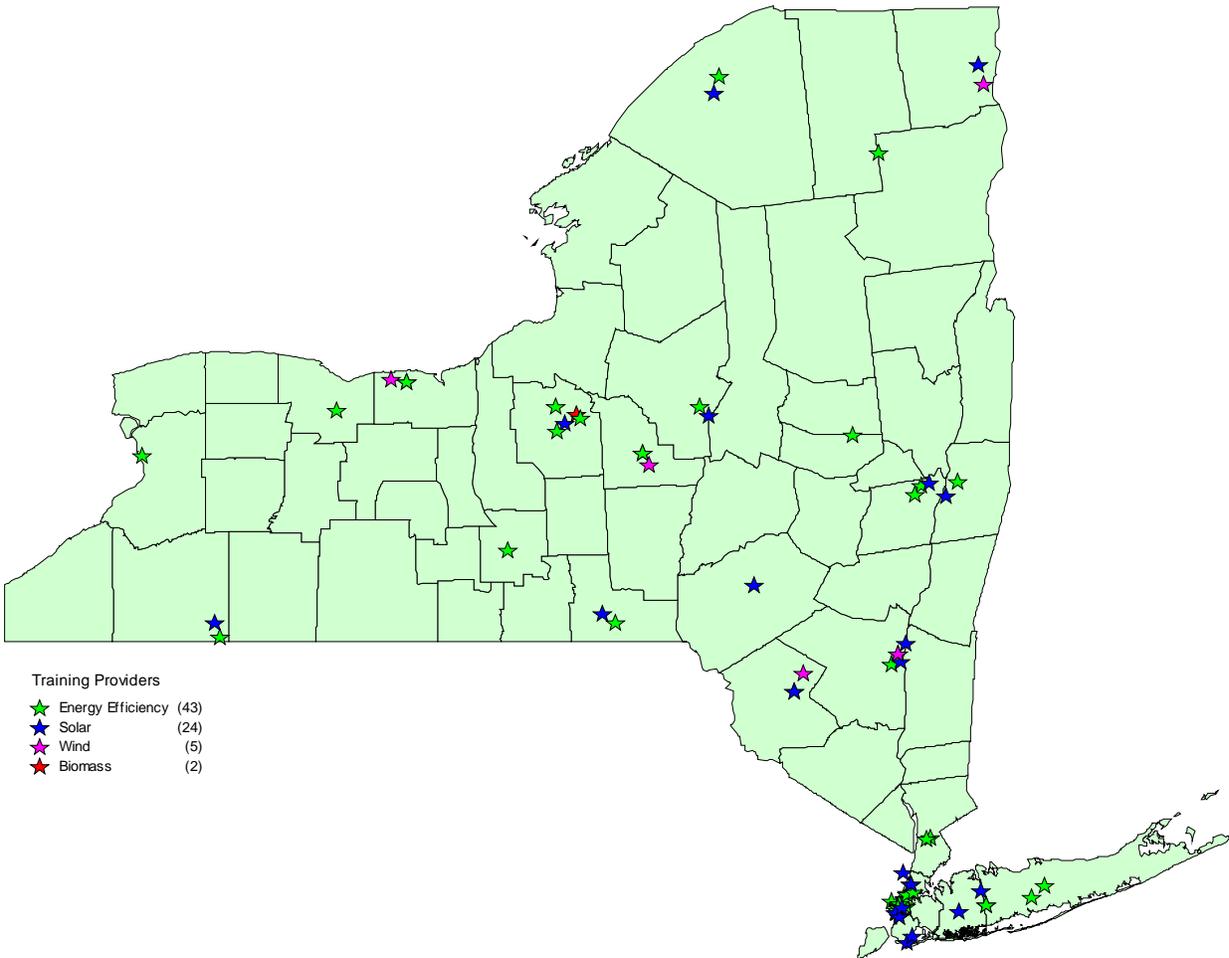
NYSDOL is also advancing the clean energy industry through its Regional Industry Cluster Grants (13N), where approximately \$4.1 million (2007-09) has been awarded to five New York State regions who are implementing innovative workforce initiatives to train workers in renewable energy, energy efficiency, clean technology and environmental clusters. These grants all require collaboration between workforce development, economic development, educational institutions and the business community. Grants were awarded to the Mohawk Valley and Capital Region (\$1,050,000 – biofuels and energy), the Hudson Valley (\$1,050,000 – cleantech), Central New York (\$1,000,000 – energy and environmental systems) and the North Country (\$1,000,000 – renewable energy).

## **Training Inventory**

An inventory of 49 renewable energy and weatherization training locations across the state, delivering approximately 70 distinct programs, were identified for this report. A listing of the training providers included in the inventory is presented in *Appendix H*.

Figure 3 is a New York State map depicting the 49 training locations by sector. Many locations provide training programs in multiple sectors. As shown, the largest share of the training programs is in energy efficiency (57%) followed by solar (32%), wind (7%) and biomass (3%).

**Figure 3 – Clean Energy Training Locations in New York State, by Sector**



### ***Energy Efficiency Training***

Figure 4 is a New York State map depicting the location of the weatherization training programs, and energy efficiency training programs recognized by the Building Performance Institute (BPI). BPI certification of workers is nationally and internationally recognized, and supports the development of a highly professional building performance industry through organizational accrediting and a rigorous qualified assurance program. BPI standards focus on a “whole-house” approach, including areas such as ventilation, heating, foundations, and windows. Certification is awarded only after both written and field tests, to ensure contractors’ understanding of BPI standards. BPI recognized training and certification assures professional competency in the building performance industry.

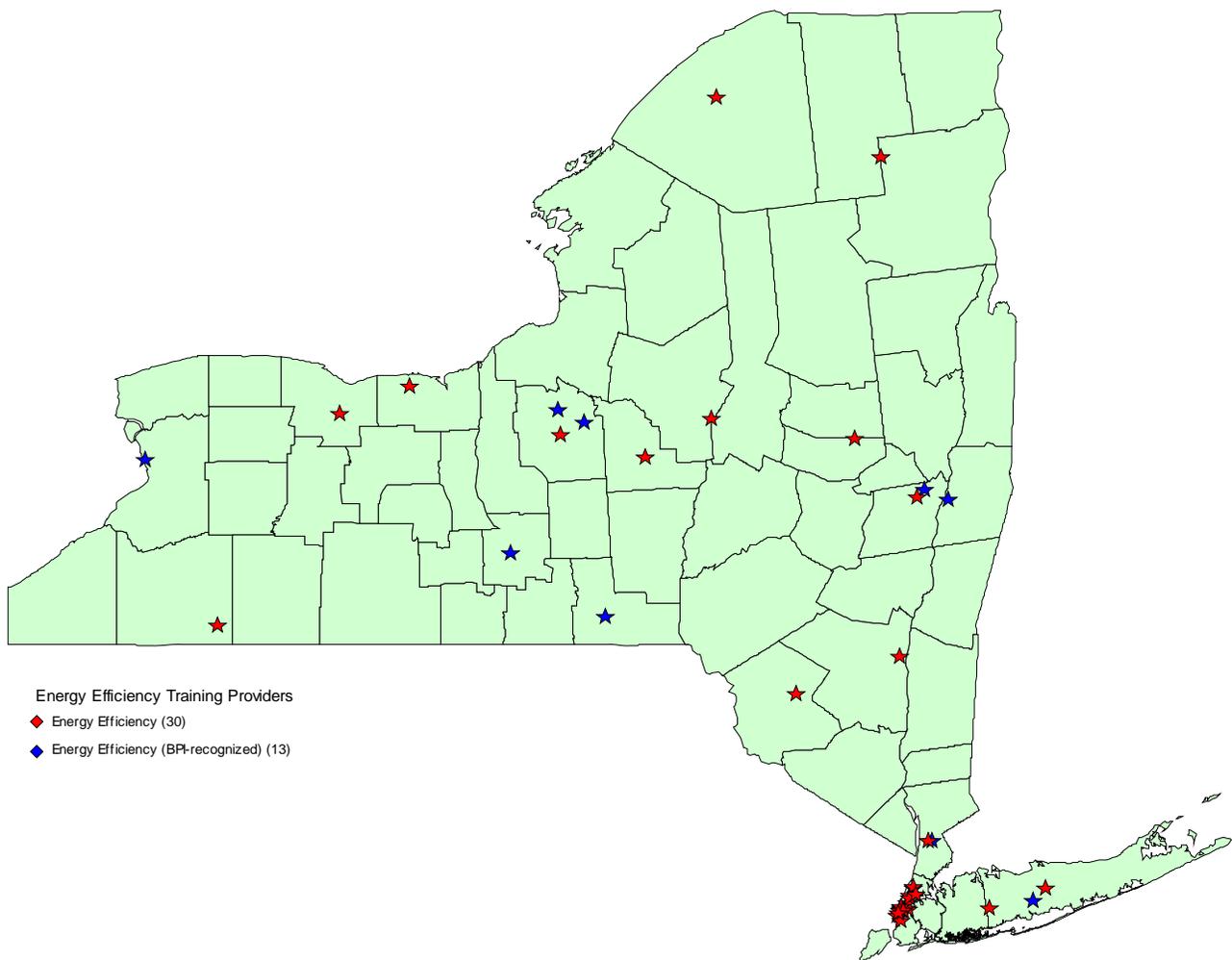
BPI certifications include:

- ◆ Certified Building Analyst;
- ◆ Multifamily Building Analyst;
- ◆ Air Conditioning and Heat Pump Specialist;

- ◆ Certified Heating Specialist;
- ◆ Certified Envelope Professional;
- ◆ Mobile Home Specialist;
- ◆ Multifamily Building Operator; and
- ◆ Multifamily Hydronic Heating System Designer.

Among the energy efficiency programs, approximately one-third were recognized by BPI.

**Figure 4 – Energy Efficiency Training Locations in New York State**



**Solar Training**

Of the 35 specific solar training programs offered across the state, approximately 67% are PV and 33% are solar thermal. Approximately 50% of the PV and solar thermal programs are recognized by the North American Board of Certified Energy Practitioners (NABCEP). NABCEP certification is nationally recognized and NABCEP is committed to providing training programs of quality and integrity for the professional and consumer public.

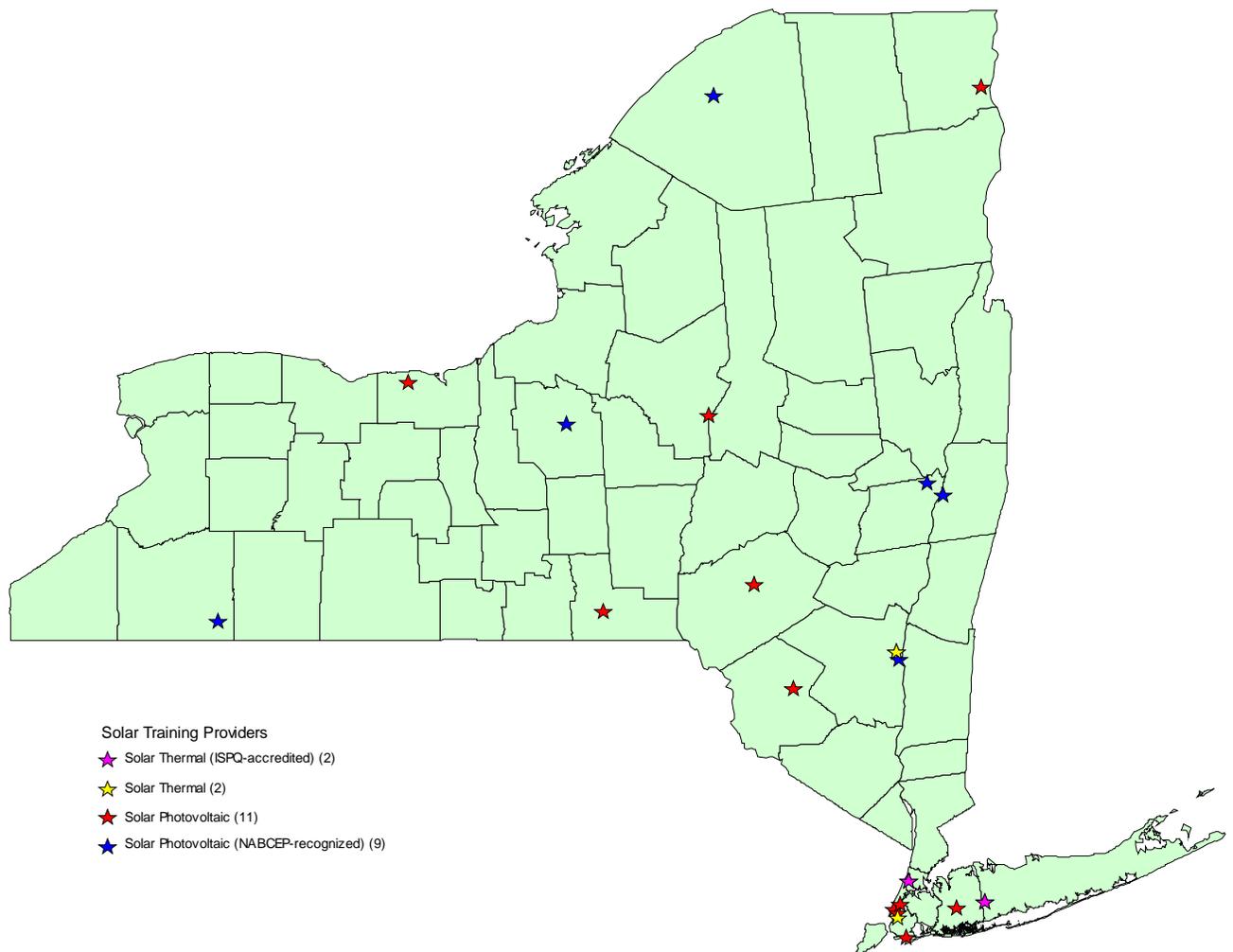
NABCEP issues certification credentials to PV and solar thermal system installers who satisfy eligibility requirements established by its Board of Directors and pass a written exam. NABCEP certifications include:

- ♦ Solar Photovoltaic Installer;
- ♦ Solar Thermal Installer;
- ♦ Entry-level Solar Photovoltaic Certificate of Knowledge; and
- ♦ Small Wind Energy Systems Work (in development).

According to NABCEP, 514 PV installers have been certified nationally from the Fall of 2003 to August 2008. New York State ranks 2<sup>nd</sup> nationally with 8% of total certificates.

Figure 5 is a New York State map depicting the location of the solar training programs in New York State.

**Figure 5 – Solar Training Locations in New York State**



## **Barriers to Training**

The barriers to training addressed in this report are listed below. The remainder of this section describes each barrier and provides one or more recommendations for addressing the barrier.

1. Attaching employment-related outcomes to training (e.g., entered employment, employment retention and wage increases).
2. Loss of income while participating in training (particularly loss of needs-related income).
3. Cost of Work Experience / On the Job Training.
4. Pathways out of Poverty: Need for Employment Retention Supports.
5. Cost of Tuition.
6. Need for Training Infrastructure.
7. Need for Marketing and Outreach.

### ***Attaching Employment-Related Outcomes to Training***

Productivity growth in firms, industries, and the general economy occurred as a result of technical change embodying both: 1) technology; and 2) skilled labor. The positive productivity effects of workforce development and training investments to increase worker knowledge, skills and abilities have been conclusively documented in the literature. Therefore, the primary objective of public investment in workforce development and training is increasing worker knowledge, skills and abilities in targeted sectors.

This finding is important in establishing outcomes to measure the effectiveness of public investments in workforce development because, if the expected outcomes do not closely align with the primary objective, then the ability of the investment to effectively achieve the primary objective will be compromised. While attaching employment-related outcomes (e.g., job placement, retention and wages) to workforce development investments is laudable, these outcomes reside outside the primary objective of workforce development and training.

Recommendation – Outcomes to measure effectiveness of workforce development investment should be based upon worker proficiency in the knowledge, skills and abilities required of the jobs to manufacture, install, operate and maintain the technology advances in clean energy.

### ***Loss of Income While Participating In Training***

For many individuals, the need to work to earn immediate income to cover basic needs far exceeds the desired greater income potential from not working and participating in training. That is, the affordability of training for many individuals is highly dependent upon the individual's ability to financially provide for their basic needs.

### Recommendation

- ♦ Workforce development investments should include needs-related payments to encourage individuals to participate in training.

- ♦ Individuals approved for Unemployment Insurance (UI) benefits should be allowed to receive these benefits while attending a clean energy training program determined by an employment plan.

### ***Cost of Work Experience / On the Job Training***

From a business perspective, work experience/on-the-job-training (OJT) is a cost to the business in the form of lower worker productivity while workers acquire the requisite experience. Many businesses cannot afford the cost of low productivity associated with inexperienced workers.

Recommendation – Workforce development investments should cover the cost that business incurs associated with Work Experience / OJT.

### ***Pathways Out of Poverty – Need for Employment-related Supports***

In responding to pathways out of poverty, it is of critical importance to recognize that a job alone does not remediate “employment barriers” which impede/prevent employment retention and advancement in the labor market faced by most economically disadvantaged individuals. Employment barriers confronting economically disadvantaged individuals include but are not limited to: criminal records; probation requirements; drug use; work-readiness skill deficiency; English deficiency; reading, math and science deficiency; basic mechanical and technical skill deficiency; lack of transportation; lack of child care; and domestic violence.

Recommendation – Workforce development investments targeted at entry-level positions of a career ladder should include supports to the individual upon obtaining a job, to help them retain the job and progress along the career ladder for that occupation. Employment-related supports are essential to pathways out of poverty.

### ***Cost of Tuition***

The cost of tuition and the related course books and materials is not affordable for many individuals.

Recommendation – Workforce development investments should help pay for the cost of tuition and related course books and materials.

### ***Need for Training Infrastructure***

Training infrastructure includes curriculum development, school start-up and accreditation, and worker certification. It also includes the cost to properly equip workers with the requisite tools necessary for the job.

Recommendation – Workforce development investment should create a training infrastructure to advance skills proficiency (including certification) in installation work, operation work and maintenance work in the clean energy industry.

### ***Need for Marketing and Outreach***

Many individuals do not know of the availability of training programs in their area, or the public workforce investment funds available to assist them in completing training. This is likely to be particularly relevant in economically and environmentally disadvantaged communities.

Recommendation – Workforce development investments should promote clean energy training initiatives and opportunities. These efforts should initially focus on low income residence building performance and urban ecology.

## **STATE LEVEL COLLABORATION**

Relevant to this report are the ongoing, transparent, genuinely willing, and often passionate state level collaborations on renewable energy and enhanced energy independence. This collaboration extends across members of the following state level initiatives: the Workforce Development and Training Working Group established under the state’s Energy Efficiency Portfolio Standard; the Interagency Environmental Justice Task Force; the Renewable Energy Portfolio Standard; the Regional Greenhouse Gas Initiative; the state’s participation on the National Governor’s Association (NGA) Policy Academy on State Sectors Strategies; and most recently strategies on implementing the ARRA. These efforts have prepared the state to immediately and successfully understand, respond to, nurture and grow the clean energy sectors identified by the Renewable Energy Task Force and the ARRA.

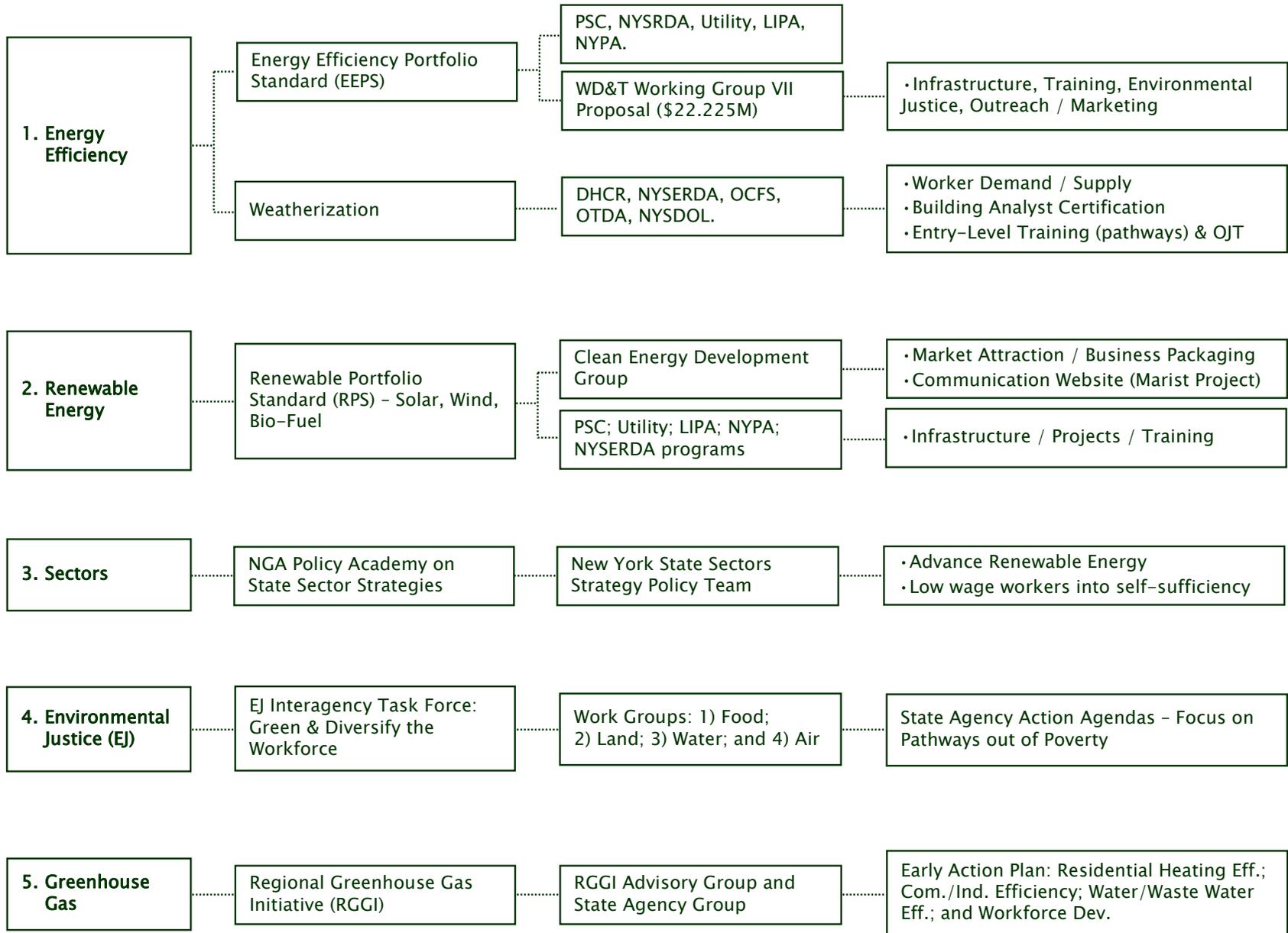
ARRA funding is channeled to states through existing funding streams administered by different state agencies. This is the most expeditious and efficient way to advance implementation. However, each funding stream has legislative and/or regulatory restrictions which preclude a single agency from providing the full-range of activities necessary to support these objectives.

Therefore, state agencies must continue to collaborate, align and leverage their resources to assure that job creation, workforce development and pathways out of poverty are being addressed comprehensively, such that each agency’s funding is being leveraged in the most effective and optimal manner.

Figure 6 presents a chart of clean energy job state level collaboration under the following five initiatives:

1. Energy Efficiency – Energy Efficiency Portfolio Standard (EEPS);
2. Renewable Energy – Renewable Energy Portfolio Standard (RPS);
3. Sectors – National Governor’s Association (NGA) Policy Academy on State Sectors Strategies;
4. Environmental Justice – Environmental Justice Interagency Task Force; and
5. Greenhouse Gas – Regional Greenhouse Gas Initiative.

**Figure 6 – Clean Energy Jobs: New York State Level Collaborations**



## **SUMMARIES / RECOMMENDATIONS**

This report addresses key aspects of clean energy jobs in New York State in order to help inform decisions and utilize public investments in the most optimal manner. The perspective focuses on three primary objectives of public investment in clean energy jobs.

- ♦ Stimulate Job Creation / Job Retention – provide capital investment in manufacture, installation, production and maintenance across the entire supply chain that supports the clean energy industry.
- ♦ Support Workforce Development – provide workers with the requisite knowledge, skills and abilities to allow business productivity to be competitive in a global economy and to assure business output achieves quality and efficiency expectations.
- ♦ Advance Pathways Out of Poverty.

This section provides summaries and recommendations for the following topics:

- ♦ Clean Energy Occupations;
- ♦ State Agency Collaboration and Program Alignment;
- ♦ Training Inventory;
- ♦ Barriers to Training;
- ♦ Labor Market Intelligence; and
- ♦ New York State Green Jobs Portal.

### **Clean Energy Occupations**

The current economic landscape is too dynamic and evolving to accurately estimate the number of jobs in New York State’s clean energy industry. However, the results of this report indicate that the clean energy industry largely employs workers with the same skills as other related businesses; compete in the same labor markets; and are affected by the same labor supply/demand relationships.

So while new occupational titles will emerge for the clean energy industry, the skills for the vast majority of these occupations will be very similar to existing job titles, with incremental skill enhancements specific to the industry. This intelligence is sufficient to immediately advance clean energy jobs in New York State. In addition, the American Recovery and Reinvestment Act of 2009 (ARRA) provides substantial funding to support job creation and workforce development in the state’s clean energy industry.

### **State Agency Collaboration and Program Alignment**

Relevant to this report are the ongoing, transparent, genuinely willing, and often passionate state level collaborations on renewable energy. The collaboration extends across members of the following state level initiatives: the Workforce Development and Training Working Group established under the state’s Energy Efficiency Portfolio Standard; the Interagency Environmental Justice Task Force; the Renewable Energy Portfolio Standard; the Regional Greenhouse Gas Initiative; the state’s participation on the National Governor’s Association

(NGA) Policy Academy on State Sectors Strategies; and most recently strategies on the ARRA. These efforts have prepared the state to immediately and successfully understand, respond to, nurture and grow the clean energy sectors identified by the Task Force and the ARRA.

ARRA funding is channeled to states through existing funding streams administered by different state agencies. This is the most expeditious and efficient way to advance implementation. However, each funding stream has legislative and/or regulatory restrictions which preclude a single agency from providing the full-range of activities necessary to support these objectives.

Therefore, state agencies must continue to collaborate, align and leverage their resources to assure that job creation, workforce development and pathways out of poverty are being addressed comprehensively, such that each agencies funding is being leveraged in the most effective and optimal manner.

### ***Weatherization Assistance Program (WAP) Collaboration***

The WAP is ideal for collaboration because the state is able to directly impact the three objectives. This is possible because both the demand for labor and the supply of labor are controlled by public funding.

- ♦ New York State Division of Housing and Community Renewal (DHCR), NYSERDA, New York State Office of Children and Family Services (OCFS), New York State Office of Temporary and Disability Assistance (OTDA) and NYSDOL shall continue to collaborate on implementing the states weatherization assistance programs administered by DHCR and NYSERDA, where OTDA and NYSDOL assist with recruiting and training entry-level workers.
- ♦ State agency collaborations to support the WAP should also advance interest and awareness in environmental justice communities about the benefits of weatherization.

### ***State Workforce Investment Board Collaboration***

The New York State Workforce Investment Board is also an ideal forum for collaboration on workforce development to support clean energy jobs.

- ♦ The State Workforce Investment Board should establish a Green Jobs Subcommittee to advance the work of the New York State Sectors Strategy Policy Team, and address the workforce needs of the clean energy industry. NYSERDA, DHCR, OTDA and the New York State Education Department (NYSED) should be designated as subcommittee members.

## **Training Inventory**

In identifying the state's clean energy training programs, it became evident that a disconnect exists between the 70-plus clean energy training programs identified in this report, and the Workforce New York Training Inventory used by the state's One-Stop system to fund training (administered by NYSDOL under the Workforce Investment Act Title 1B program). For example, the Workforce New York Training Inventory contains about 12,000 course offerings and 1,500 locations, and only a handful of the 70-plus clean energy training programs identified in this report also appear on the state training inventory. The main reasons for this include:

- ♦ Most of the clean energy training programs identified in this report have been created in response to NYSERDA funding to create infrastructure to facilitate NABCEP and BPI accreditation and certification.
- ♦ Most of the Workforce New York Training Inventory is in response to schools seeking eligibility to participate in WIA funded training.
- ♦ The Workforce New York Training Inventory contains many offerings regulated by the NYSED Bureau of Proprietary School Supervision, whereas the clean energy training inventory contains programs recognized by NABCEP and BPI.

### Recommendations

- ♦ Workforce development investments to support clean energy jobs should advance the use of training programs maintained by NYSERDA and training programs maintained on the Workforce New York Training Inventory.
- ♦ NYSERDA and NYSDOL should continue to collaborate to assure the Workforce New York Training Inventory is comprehensive.
- ♦ All training providers and programs supported by NYSERDA funding should be granted initial eligibility (local and state) upon applying for eligibility on the Workforce New York Training Inventory.
- ♦ NYSERDA and NYSDOL should collaborate with NYSED Bureau of Proprietary School Supervision to address expedited approval of proprietary schools and courses that support clean energy jobs.

## **Barriers to Training**

### *Program Outcomes*

- ♦ Outcomes to measure the effectiveness of workforce development investment should be based upon worker proficiency in the knowledge, skills and abilities required to manufacture, install, operate and maintain the technology advances in clean energy.

### *Income Supports*

- ♦ Workforce development investments should include needs-related payments to encourage individuals to participate in training.
- ♦ Individuals approved for Unemployment Insurance (UI) benefits should be allowed to receive these benefits while attending a clean energy training program being advanced by the state.

### *Work Experience / On-the-Job-Training*

- ♦ Workforce development investments should include the cost to business associated with work experience / on-the-job-training.

### ***Pathways Out of Poverty: Need for Employment-related Supports***

- ♦ Workforce development investments targeted at the entry-level position of a career ladder should include supports to the individual upon obtaining a job, to help them retain the job and progress along the career ladder for that entry level occupation. Employment related supports are essential to pathways out of poverty.

### ***Tuition and Related Costs***

- ♦ Workforce development investments should help pay for the cost of tuition and related course books and materials.

### ***Training Infrastructure***

- ♦ Workforce development investments should create a training infrastructure to advance skills proficiency (including certification) in installation work, operation work and maintenance work in the clean energy industry.

### ***Outreach and Marketing***

- ♦ Workforce development investments should promote clean energy training initiatives and opportunities. These efforts should initially focus on low income residential building performance and urban ecology.

## **Labor Market Intelligence**

The labor market analysis of this report represents a starting benchmark for research activities of critical importance in developing the rapidly evolving clean energy sectors.

- ♦ NYSERDA and NYSDOL both have strong capacity to assess the clean energy industry; NYSERDA on economic modeling and NYSDOL on occupational analysis. Both functions are of critical importance in projecting job growth and implementing workforce development. NYSERDA and NYSDOL should align the work being done under these functions to improve the states capacity to address clean energy jobs.
- ♦ NYSDOL should continue to refine the labor market characteristics prepared for this report. This includes tracking business trends in the clean energy industry, and establishing direct communication with businesses to identify their labor profile.
- ♦ NYSDOL should expand the analysis to include bio-fuels, biomass, indoor air quality, green building products, battery products, fuel cells and other clean technology industries with growth potential in New York State.

## **New York State Green Jobs Portal**

NYSDOL is developing a New York State Green Jobs Portal, intended to coordinate information and services on clean energy jobs desired by three target customer groups:

- ♦ Individuals looking for jobs and wanting to explore careers;
- ♦ Businesses looking for talent/job bank services, tax credits and incentives; and
- ♦ Workforce professionals seeking policies and funding opportunities.

The NYS Green Jobs Portal will direct these customers to information relevant to them, and relevant to advancing New York State's green economy. The types of information to be provided would include:

- ♦ Career Information – Provide a link to Career Zone and/or Job Zone for information on career planning and skills training for occupations available in the individual's location.
- ♦ Business Information – Provide a link to information regarding tax credits and incentives for businesses. It would also provide information on available talent banks and training available for incumbent workers.
- ♦ Policy and Funding – Provide a link to funding opportunities available for training and project development, and provide information about policies and issues.

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**APPENDIX A – BUSINESS AND EMPLOYMENT IN NEW YORK STATE**

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

Business Name/Product Line	Street Address	Municipality	State	Zip Code	Phone Number	Business Type
<b>Alternative Fuel Vehicles</b>						
AltFuels Advisor	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
eVionyx	6 Skyline Dr.	Hawthorne	NY	10532	(914) 345-0321	Manufacturer
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Hybrid & Electric Vehicle Progress	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Rao Services	2937 41 Ave., 2nd Floor-Suite 1	Long Island City	NY	11101	(718) 726-0411	Consulting; project development; import/export
<b>Alternative Homes and Buildings</b>						
Alternative Environmental Energy Technologies, Inc.	PO Box 283 Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; wholesaler; builder; contractor
Alternative Traxx	PO Box 63	New Berlin	NY	12411	(607) 764-8229	Retailer
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave. Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Bert Echt: Designer/Craftsman	63 Strong Rd.	Ferndale	NY	12734	(914) 295-9221	Construction; installation; service
Business Arts	311 South Albany St.	Ithaca	NY	14850	(607) 351-7351	Architecture
Eco-Built, Inc.	PO Box 149 - 10 Main St.	Summit	NY	12175	(518) 287-1845	Retailer; design
Firm Foundation Consultants	Sessions Rd.	Sauquoit	NY	13456	(315) 525-5092	Consulting
ETS Energy Store	445 Hamilton Ave., Suite 1102	White Plains	NY	10601	(866) 343-5551	Retailer; wholesaler; consulting
GreenStreet Construction and Consulting	630 9th Ave., Suite 213	New York	NY	10036	(212) 265-5179	Construction; consulting
Ikan Consulting Services	235 Burt Rd.	Cuba	NY	14727	(585) 899-9606	Engineering; project management
Kiss + Cathcart, Architects	44 Court St., Tower C	Brooklyn	NY	11201	(718) 237-2025	Consulting; design; engineering; architecture
<b>Alternative Home and Building Construction Materials</b>						
Alternative Environmental Energy Technologies, Inc.	PO Box 283 Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; wholesaler; builder; contractor
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave. Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Bert Echt: Designer/Craftsman	63 Strong Rd.	Ferndale	NY	12734	(914) 295-9221	Construction; installation; service
Duce Construction Corp.	412 West 127th St.	New York	NY	10027	(212) 316-2400	Construction; installation
Eagle Mountain Inc.	4353 Bristol Valley Rd.	Canandaigua	NY	14424	(800) 572-7831	Manufacturer; retailer; wholesaler
EBM Consulting Services	PO Box 911	Millbrook	NY	12545	(845) 877-6030	Consulting; design; installation; construction
Eco-Built, Inc.	PO Box 149 - 10 Main St.	Summit	NY	12175	(518) 287-1845	Retailer; design
Kiss + Cathcart, Architects	44 Court St., Tower C	Brooklyn	NY	11201	(718) 237-2025	Consulting; design; engineering; architecture
Panda Bamboo Products	15-15 119th St.	College Point	NY	11356	(718) 353-0700	Manufacturer; retailer; wholesaler

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Appliances</b>						
Ameritechtoys, Corp.	2302 Ave T	Brooklyn	NY	11229	(866) 988-3247	Retailer; wholesaler
Appliances Unlimited	59 Boulevard	Queensbury	NY	12804	(518) 761-9501	Retailer; wholesaler; exporter
Best Appliance Buys	94 Smith Ave.	Mount Kisco	NY	10549	(914) 666-3232	Retailer
Creative Energy Technologies Inc.	2872 State Rt 10	Summit	NY	12175	(518) 287-1428	Retailer
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Stoneworks Inc.	135 West 96th St., Apt.-5	New York	NY	10025	(212) 222-8743	Retailer; service; importer
Sun Mountain	PO Box 1364	Olivebridge	NY	12461	(845) 657-8096	Retailer
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
Tech-Quipment International	560 West 43rd St., Suite 10J	New York	NY	10036	(860) 796-7989	Wholesaler; exporter
<b>Backup Power Systems</b>						
Alternative Energy Solutions, LLC	163 North Main St., Suite 202	Port Chester	NY	10573	(914) 937-0608	Construction; installation
Creative Energy Technologies Inc.	2872 State Rt 10	Summit	NY	12175	(518) 287-1428	Retailer
eVionyx	6 Skyline Dr.	Hawthorne	NY	10532	(914) 345-0321	Manufacturer
Freedom Energy Solutions	33 Yale St.	Port Jefferson	NY	11776	(631) 404-9718	Construction; installation; design; consulting
GreenStreet Construction and Consulting	630 9th Ave., Suite 213	New York	NY	10036	(212) 265-5179	Construction; consulting
Logic Box Industries	60 Industrial Parkway, Unit 491	Buffalo	NY	14227	(866) 577-3628	Wholesaler; exporter
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
MDS Technical Service	3530 Rt 34B	Scipio Center	NY	13147	(315) 364-5270	Consulting; design; installation
New York Wind & Sun, LLC	127 Hunter Dr.	Baldwinsville	NY	13027	(315) 433-6058	Construction; installation
Nextek Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer
Pacific Power Systems	234 Lake Dr.	Copiague	NY	11726	(631) 264-0130	Manufacturer
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
Prime Energy Technologies, Inc.	590 New York Ave.	Huntington	NY	11743	(800) 799-5005	Construction; installation; project development
Rao Services	2937 41 Ave., 2nd Floor-Suite 1	Long Island City	NY	11101	(718) 726-0411	Consulting; project development; import/export
Renewable Resources, LLC	22 Pleasant Ridge Rd.	Valhalla	NY	10595	(914) 345-6100	Retailer; wholesaler
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Stabylex Electronics Corp.	2 Trade Dr.	Massena	NY	13622	(315) 769-5453	Manufacturer
Steven B Dietrich	151 Northern Blvd., Suite 1	St. James	NY	11780	(631) 584-6433	Manufacturer
Sun Mountain	PO Box 1364	Olivebridge	NY	12461	(845) 657-8096	Retailer
UPSforLESS	2215 Kenmore Ave., Suite 100	Buffalo	NY	14207	(866) 577-3628	Reseller; distributor

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

Business Name/Product Line	Street Address	Municipality	State	Zip Code	Phone Number	Business Type
<b>Battery Products</b>						
Acolyte Systems Inc.	251 West 30th St.	New York	NY	10001	(212) 629-3239	Manufacturer; retailer; wholesaler
Alternative Traxx	PO Box 63	New Berlin	NY	12411	(607) 764-8229	Retailer
Batteries Express, Inc.	7174 Boston State Rd.	Hamburg	NY	14075	(716) 649-3264	Retailer; wholesaler
Creative Global Network Services	200 Parkway Dr. South	Hauppauge	NY	14564	(585) 924-2176	Installation; consulting; retailer
Curtis Instruments, Inc.	200 Kisco Ave.	Mount Kisco	NY	10549	(914) 666-2971	Manufacturer; distributor; service; design
DC AC Power Inverters	100 Walnut St.	Champlain	NY	12919	(212) 685-4065	Manufacturer; retailer; wholesaler
ePowerlinks Consultant	50-33 101 St.	Flushing	NY	11368	(718) 606-0321	Manufacturer; wholesaler
eVionyx	6 Skyline Dr.	Hawthorne	NY	10532	(914) 345-0321	Manufacturer
Freedom Energy Solutions	33 Yale St.	Port Jefferson	NY	11776	(631) 404-9718	Construction; installation; design; consulting
Giant Battery Co.	57th St. & Fifth Ave.	New York	NY	10013	(718) 775-3972	Manufacturer; design; installation; consulting
McDowell Research	2000 Technology park	Newark	NY	14513	(315) 332-7100	Manufacturing; design
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Nextek Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer
Pacific Power Systems	234 Lake Dr.	Copiague	NY	11726	(631) 264-0130	Manufacturer
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
Power^Up Manufacturing, Inc.	750 Ensminger Rd., Suite 106	Tonawanda	NY	14150	(800) 960-0411	Manufacturer; distributor
RefurbUPS.com Inc.	379 Spook Rock Industrial Park	Suffern	NY	10901	(845) 357-6911	Wholesaler; retailer
Renewable Energy Works!	290 Genesee St.	Avon	NY	14414	(585) 226-2920	Biodiesel workshops
Renewable Resources, LLC	22 Pleasant Ridge Rd.	Valhalla	NY	10595	(914) 345-6100	Retailer; wholesaler
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Silicon Solar	16 Winkler Rd.	Sidney	NY	13838	(607) 563-7865	Manufacturer; retailer; wholesaler
Steven B Dietrich	151 Northern Blvd., Suite 1	St. James	NY	11780	(631) 584-6433	Manufacturer
Sun Power Systems	1217 Montauk Highway	Oakdale	NY	11769	(631) 750-9454	Retailer
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2224	Construction; installation; design; consulting
Tadiran Electronic Industries, Inc.	2 Seaview Blvd.	Port Washington	NY	11050	(516) 621-4980	Manufacturer
Ultralife Batteries	2000 Technology Park	Newark	NY	14513	(315) 332-7100	Manufacturer; testing services
VDC Electronics, Inc.	147D Woodbury Rd.	Huntington	NY	11743	(800) 379-5579	Manufacturer; wholesaler
Wilson Greatbatch Ltd.	10,000 Wehrle Dr.	Clarence	NY	14031	(716) 759-6901	Manufacturer
Xellerion	6 Skyline Dr.	Hawthorne	NY	10532	(914) 345-0321	Manufacturer
<b>Biomass Energy</b>						
Alternative American Energy	PO Box 585	Skaneateles	NY	13152	(315) 345-4901	Retailer; wholesaler
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Applied Thermodynamics	891 South Lake Rd.	Middlesex	NY	14507	(585) 554-4192	Engineering; design; consulting
Broms Power LLC	215 East 79th St.	New York	NY	10021	(212) 988-9460	Investment and financial services
Corn Comfort Heat	3364 Co. Rt. 49	Norfolk	NY	13667	(315) 384-4582	Consulting; retailer
GE Energy	1 River Rd.	Schenectady	NY	12345	(518) 385-2231	Consulting
Ikan Consulting Services	235 Burt Rd.	Cuba	NY	14727	(585) 899-9606	Engineering; project management
Luce Creative, Inc.	1393 Veterans Memorial Highway	Hauppauge	NY	11788	(631) 366-2705	Consulting
NYS Foundation for Science, Technology & Innovation	30 S. Pearl St.	Albany	NY	12207	(518) 292-4700	Biomass
New York International Log & Lumber Co.	91 Tanyard La.	Huntington	NY	11743	(631) 421-5747	Wholesaler; exporter
Oswego Falls Alternative Heat	306 Sharp Rd.	Fulton	NY	13069	(315) 598-5655	Retailer
Renewable NRG LLC	PO Box 1117	Woodstock	NY	12498	(845) 657-6655	Manufacturer
Smart Building Products and Services	1180 Route 32	Wallkill	NY	12589	(845) 566-9329	Engineering services
Westchester Community College	75 Grassland Road	Valhalla	NY	10595	(914) 606-6789	Weatherization
<b>Cathodic Protection Systems</b>						
Valenti Technological Services	PO Box 216	Fayetteville	NY	13066	(315) 637-2812	Management consulting services
<b>Solar Electric Charge Controllers</b>						
Bishop Enterprises	131 Hickok Ave.	Syracuse	NY	13206	(315) 463-9017	Consulting; installation; retailer
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
<b>Cogeneration Systems</b>						
Alternative Energy Solutions, LLC	163 North Main St., Suite 202	Port Chester	NY	10573	(914) 937-0608	Construction; installation
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave., Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Applied Thermodynamics	891 South Lake Rd.	Middlesex	NY	14507	(585) 554-4192	Engineering; design; consulting
Broms Power LLC	215 East 79th St.	New York	NY	10021	(212) 988-9460	Investment and financial services
Coast Intelligen, Inc.	55 Ediston Ave.	West Babylon	NY	11704	(212) 750-0371	Manufacturer
Ecopac Equipment, Inc.	306 South Salina St.	Syracuse	NY	13202	(315) 475-1580	Reseller; wholesaler; retailer
Renewable NRG LLC	PO Box 1117	Woodstock	NY	12498	(845) 657-6655	Manufacturer
Smart Building Products and Services	1180 Route 32	Wallkill	NY	12589	(845) 566-9329	Engineering services
<b>Cogeneration System Components</b>						
AET Solar	50 Patten Rd.	Newburgh	NY	12550	(845) 728-3881	Consulting services
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave., Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Stork H&E Turbo Blading, Inc.	334 Comfort Rd.	Ithaca	NY	14850	(607) 277-4968	Manufacturer
<b>Composting Systems</b>						
Tinkertown, Inc.	833 Route 244 Tinkertown Rd.	Alfred Station	NY	14803	(866) 845-5462	Installation; retailer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Computer and Electronic Components</b>						
Exquisite Heat	172 Foshay Ave.	Pleasantville	NY	10570	(914) 588-4791	Manufacturer
Fanour Electronics	243 West 123rd St., Suite 1	New York	NY	10027	(212) 932-9865	Consulting services; exporter
QualityBatteries.com		Brooklyn	NY	11219	(718) 437-2558	Retailer; wholesaler
World Power Components	147 Highland Ave.	New York	NY	11768	(866) 878-0026	Manufacturer; wholesaler
<b>Computer Software</b>						
Ameritechtoys, Corp.	2302 Ave T	Brooklyn	NY	11229	(866) 988-3247	Retailer; wholesaler
Marsland Renewable Energy	62 Birdsall St.	Greene	NY	13778	(607) 656-7584	Retailer
Prism Visual Software, Inc.	1 Sagamore Hill Dr.	Port Washington	NY	11050	(516) 944-5920	Software designer
<b>DC To DC Power Converters</b>						
Stabylex Electronics Corp.	2 Trade Dr.	Massena	NY	13622	(315) 769-5453	Manufacturer; design; engineering
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
<b>DC To AC Power Inverters</b>						
Advanced Solar	22 Fairway Dr.	Port Jefferson	NY	11776	(631) 642-7435	Retailer
Bishop Enterprises	131 Hickok Ave.	Syracuse	NY	13206	(315) 463-9017	Consulting; installation; retailer
CKC Power	23 Graywood Dr.	Orangeburg	NY	10962	(914) 359-6633	Wholesaler
Creative Energy Technologies Inc.	2872 State Rt 10	Summit	NY	12175	(518) 287-1428	Retailer
DC AC Power Inverters	100 Walnut St.	Champlain	NY	12919	(212) 685-4065	Manufacturer; retailer; wholesaler
Empire Clean Energy Supply	1520 Ocean Ave.	Bohemia	NY	11716	(631) 589-4340	Manufacturer; wholesaler
Fanour Electronics	243 West 123rd St., Suite 1	New York	NY	10027	(212) 932-9865	Consulting services; exporter
Marsland Renewable Energy	62 Birdsall St.	Greene	NY	13778	(607) 656-7584	Retailer
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
Renewable Energy Works!	290 Genesee St.	Avon	NY	14414	(585) 226-2920	Biodiesel workshops
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Stabylex Electronics Corp.	2 Trade Dr.	Massena	NY	13622	(315) 769-5453	Manufacturer; design; engineering
<b>Earth Sheltered Homes and Buildings</b>						
Environmental Technologies & Solutions, Inc.	PO Box 283, Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; wholesaler
<b>Electric Vehicles</b>						
Advanced Drive Development Corp.	PO Box 1440	New York	NY	10023	(212) 769-2457	Manufacturer; engineering; exporter
Alternate Propulsion Motor Co.	63-61 77th Place	Middle Village	NY	11379	(646) 207-9584	Manufacturer; engineering; installation
Convergence Tech, Inc.	19 Tioga Lane	Pleasantville	NY	10570	(914) 773-6749	Manufacturer; consulting

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
DIDIK	GPO	New York	NY	10116	(718) 843-6839	Manufacturer; design; wholesaler; retailer
ePowerlinks Consultant	50-33 101 St.	Flushing	NY	11368	(718) 606-0321	Manufacturer; wholesaler
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Hybrid & Electric Vehicle Progress	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Lacey Manufacturing Inc.	PO Box 2024	Albany	NY	12220	(877) 276-0640	Manufacturer; project development
Luce Creative, Inc.	1393 Veterans Memorial Highway	Hauppauge	NY	11788	(631) 366-2705	Consulting
Megawatt Motorworks, Inc.	249 Midline Rd.	Slaterville Springs	NY	14881	(607) 539-9968	Publisher
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2224	Construction; installation; design; consulting
<b>Energy Efficient Homes and Buildings</b>						
Alternative Environmental Energy Technologies, Inc.	PO Box 283, Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; construction; wholesaler
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave. Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Eco-Built, Inc.	PO Box 149 - 10 Main St.	Summit	NY	12175	(518) 287-1845	Design; retailer; exporter
Environmental Technologies & Solutions, Inc.	PO Box 283, Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; wholesaler
Fanour Electronics	243 West 123rd St., Suite 1	New York	NY	10027	(212) 932-9865	Consulting services; exporter
GreenStreet Construction and Consulting	630 9th Ave., Suite 213	New York	NY	10036	(212) 265-5179	Construction; consulting
Kiss + Cathcart, Architects	44 Court St., Tower C	Brooklyn	NY	11201	(718) 237-2025	Consulting; design; engineering; architecture
MDS Technical Service	3530 Rt 34B	Scipio Center	NY	13147	(315) 364-5270	Consulting; design; installation
Prime Energy Technologies, Inc.	590 New York Ave.	Huntington	NY	11743	(800) 799-5005	Construction; installation; project development
Savant Solar LLC	144 Crescent Dr.	Albertson	NY	11507	(516) 974-7600	Installation; design; consulting; maintenance
<b>Fuel Cell Systems</b>						
Electric Transportation Solutions, LLC	100 South Bedford Rd., Suite 340	Mount Kisco	NY	10549	(866) 895-2238	Wholesaler; retailer; exporter
Freedom Energy Solutions	33 Yale St.	Port Jefferson	NY	11776	(631) 404-9718	Construction; installation; design; consulting
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Hybrid & Electric Vehicle Progress	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Lacey Manufacturing, Inc.	PO Box 2024	Albany	NY	12220	(877) 276-0640	Manufacturer; project development; research
Luce Creative, Inc.	1393 Veterans Memorial Highway	Hauppauge	NY	11788	(631) 366-2705	Consulting
Plug Power	968 Albany-Shaker Rd.	Latham	NY	12110	(518) 782-7700	Manufacturer; research services
Precision Design Systems	100 Elmgrove Park	Rochester	NY	14624	(585) 426-4500	Manufacturer
The Hydrogen & Fuel Cell Letter	69 Grinnell St.	Rhinecliff	NY	12574	(914) 876-5988	Publisher
ZIRCAR Ceramics, Inc.	100 North Main St.	Florida	NY	10921	(845) 651-6600	Manufacturer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Fuel Cell System Components</b>						
eVionyx	6 Skyline Dr.	Hawthorne	NY	10532	(914) 345-0321	Manufacturer
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
ZIRCAR Ceramics, Inc.	100 North Main St.	Florida	NY	10921	(845) 651-6600	Manufacturer
<b>Fuel Powered Electric Generators</b>						
Applied Thermodynamics	891 South Lake Rd.	Middlesex	NY	14507	(585) 554-4192	Engineering; design; consulting
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Lacey Manufacturing, Inc.	PO Box 2024	Albany	NY	12220	(877) 276-0640	Manufacturing; project development; research
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Tech-Quipment International	560 West 43rd St., Suite 10J	New York	NY	10036	(860) 796-7989	Wholesaler; exporter
Toko Asia Wind Energy	198-11 47th Ave., FL1	Flushing	NY	11358	(718) 767-3168	Manufacturer
<b>Gas Turbine Electric Generators</b>						
Gas Turbine Controls Corp.	466 Saw Mill River Rd.	Ardsley	NY	10502	(914) 693-0830	Wholesaler
Gas Turbine Parts & Service, Inc.	1 Old Route 146	Clifton Park	NY	12065	(518) 383-3227	Manufacturer; wholesaler
Innovative Control Systems, Inc.	26 Corporate Dr.	Clifton Park	NY	12065	(518) 383-8078	Installation; engineering
Jasco Tools	1390 Mnt.Read Blvd.	Rochester	NY	14606	(585) 254-7000	Manufacturer; design; engineering
Lacey Manufacturing, Inc.	PO Box 2024	Albany	NY	12220	(877) 276-0640	Manufacturer; project development; research
Mars Tech	216 Strawtown Rd.	New City	NY	10956	(845) 638-3100	Manufacturer; wholesaler
Power Equipment Sales Intl.	3333 Henry Hudson Pkwy.	Riverdale	NY	10463	(201) 805-1441	Wholesaler
Stork H&E Turbo Blading, Inc.	334 Comfort Rd.	Ithaca	NY	14850	(607) 277-4968	Manufacturer
Tech-Quipment International	560 West 43rd St., Suite 10J	New York	NY	10036	(860) 796-7989	Wholesaler; exporter
<b>Geothermal Energy Systems</b>						
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave., Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Caster Well Drilling	5363 Stow Rd.	Ashville	NY	14710	(716) 789-2230	Installation; consulting; distributor; service
Earth Sensitive Solutions	PO Box 3	Skaneateles	NY	13152	(315) 253-3779	Consulting; design
e-vanhee	700 Hollenbeck St.	Rochester	NY	14621	(585) 266-1382	Installation; design; engineering; service
GE Energy	1 River Rd.	Schenectady	NY	12345	(518) 385-2231	Consulting
GeoTherm International, LLC	493 Route 281	Tully	NY	13159	(315) 696-6100	Installation; design; maintenance
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
GreenStreet Construction and Consulting	630 9th Ave., Suite 213	New York	NY	10036	(212) 265-5179	Construction; consulting
Ikan Consulting Services	235 Burt Rd.	Cuba	NY	14727	(585) 899-9606	Consulting; engineering; design
Interior Environments	854 Mclean Ave.	Yonkers	NY	10704	(914) 237-7200	Retailer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Luce Creative, Inc.	1393 Veterans Memorial Highway	Hauppauge	NY	11788	(631) 366-2705	Consulting
Phoenix Geothermal Services	7523 County House Rd.	Auburn	NY	13021	(315) 253-3720	Design; engineering; consulting
Renovus Energy Systems	102 Cherry St.	Ithaca	NY	14850	(607) 277-1777	Installation; design; reseller
Savant Solar LLC	144 Crescent Dr.	Albertson	NY	11507	(516) 974-7600	Installation; design; engineering; consulting
Smart Energy, Inc.	86 Donald Dr.	New Rochelle	NY	10804	(914) 960-1424	Installation
Sun Power Systems	1217 Montauk Highway	Oakdale	NY	11769	(631) 750-9454	Retailer
Sun Stream USA	1764 County Rd. 39	Southampton	NY	11968	(631) 283-0057	Installation
<b>Geothermal Thermal Energy System Components</b>						
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave. Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Cal Research, Inc.	4271 Dickersonville Rd.	Ransomville	NY	14131	(716) 791-4206	Manufacturer; on-site testing; wholesaler
Caster Well Drilling	5363 Stow Rd.	Ashville	NY	14710	(716) 789-2230	Installation; consulting; service; distribution
Earth Sensitive Solutions	PO Box 3	Skaneateles	NY	13152	(315) 253-3779	Consulting; design
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
Phoenix Geothermal Services	7523 County Rd.	Auburn	NY	13021	(315) 253-3720	Engineering; consulting; design; training
Stork H&E Turbo Blading, Inc.	334 Comfort Rd.	Ithaca	NY	14850	(607) 277-4968	Manufacturer
<b>Heating, Ventilation and Air Conditioning</b>						
Conserval Systems, Inc.	4254 Ridge Lea Rd.	Buffalo	NY	14226	(716) 835-4903	Manufacturer
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2244	Consulting; design; maintenance; wholesaler
Interior Environments	854 Mclean Ave.	Yonkers	NY	10704	(914) 237-7200	Retailer
<b>Heat Pumps</b>						
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
Atlantis Custom Pools	171 Huber Ave.	Holbrook	NY	11741	(631) 445-4508	Retailer
Eagle Mountain, Inc.	4353 Bristol Valley Rd.	Canandaigua	NY	14424	(800) 572-7831	Manufacturer; wholesaler; retailer
ECR International, Inc.	2210 Dwyer Ave.	Utica	NY	13504	(315) 797-1310	Manufacturer; wholesaler; exporter
Enviro-Tech	1800 Route 9G	Staatsburg	NY	12580	(845) 224-4704	Installation; design; testing
Interior Environments	854 Mclean Ave.	Yonkers	NY	10704	(914) 237-7200	Retailer
Tech-Quipment International	560 West 43rd St., Suite 10J	New York	NY	10036	(860) 796-7989	Wholesaler; exporter
<b>Home Automation</b>						
Smart Home Systems	127 East Main St.	Smithtown	NY	11787	(631) 361-3600	Engineering; wholesaler; retailer
Vertex Security & Technology	205 Hudson St.	New York	NY	10013	(212) 586-3234	Wholesaler; retailer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Hybrid Power Systems</b>						
AltFuels Advisor	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Hybrid & Electric Vehicle Progress	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
Ikan Consulting Services	235 Burt Rd.	Cuba	NY	14727	(585) 899-9606	Consulting; engineering; design
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Steven B Dietrich	151 Northern Blvd., Suite 1	St. James	NY	11780	(631) 584-6433	Manufacturer; power quality solutions
<b>Hydro Energy</b>						
Alternative Energy Solutions, LLC	163 North Main St., Suite 202	Port Chester	NY	10573	(914) 937-0608	Construction; installation
EBM Consulting Services	PO Box 911	Millbrook	NY	12545	(845) 877-6030	Installation; design; consulting; maintenance
GE Energy	1 River Rd.	Schenectady	NY	12345	(518) 385-2231	Consulting
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
Interior Environments	854 Mclean Ave.	Yonkers	NY	10704	(914) 237-7200	Retailer
Jasco Tools	1390 Mnt. Read Blvd.	Rochester	NY	14606	(585) 254-7000	Manufacturer; design; engineering
Rao Services	2937 41 Ave., 2nd Floor-Suite 1	Long Island City	NY	11101	(718) 726-0411	Consulting; project development; import/export
Renewable NRG LLC	PO Box 1117	Woodstock	NY	12498	(845) 657-6655	Manufacturer
Renovus Energy Systems	102 Cherry St.	Ithaca	NY	14850	(607) 277-1777	Installation; design; reseller
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
The Louis Berger Group, Inc	One Seaport Plaza - 23rd Floor	New York	NY	10038	(212) 612-4341	Consulting; project development
Toko Asia Wind Energy	198-11 47th Ave., FL1	Flushing	NY	11358	(718) 767-3168	Manufacturer
<b>Hydrogen Energy</b>						
The Hydrogen & Fuel Cell Letter	69 Grinnell St.	Rhinecliff	NY	12574	(914) 876-5988	Publisher
<b>Lighting</b>						
Acolyte Systems Inc.	251 West 30th St.	New York	NY	10001	(212) 629-3239	Manufacturer; wholesaler; retailer
ASL, Energy Efficient Lighting	25 Twelfth St.	Brooklyn	NY	11215	(800) 369-1101	Manufacturer; wholesaler; retailer
Creative Energy Technologies Inc.	2872 State Rt 10	Summit	NY	12175	(518) 287-1428	Retailer
ETS Energy Store	445 Hamilton Ave., Suite 1102	White Plains	NY	10601	(866) 343-5551	Retailer; wholesaler; consulting
GoodMart.com	45 Main St.	Brooklyn	NY	11201	(877) 402-6100	Wholesaler; retailer
Henderson Wholesale lamps	1427 Milton Ave.	Syracuse	NY	13209	(315) 299-7072	Wholesaler
Lamp Technology Inc.	1645 Sycamore Ave.	Bohemia	NY	11716	(631) 567-1800	Wholesaler; retailer; service
LED Consulting	PO Box 510	Nassau	NY	12123	(518) 331-7236	Consulting; design; research
LED Waves	33 35th St.	Brooklyn	NY	11232	(800) 670-8137	Manufacturer; design
Marsland Renewable Energy	62 Birdsall St.	Greene	NY	13778	(607) 656-7584	Retailer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Meng Meng USA	396 Broadway, Suite 301A	New York	NY	10013	(212) 625-1401	Manufacturer; wholesaler; importer
Milena Lighting Design	1223 Peoples Ave.	Troy	NY	12180	(518) 276-3303	Consulting; research
National Energy Services	2374 Motor Parkway	Ronkonkoma	NY	11779	(631) 588-6698	Installation; consulting; service
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
O'Connell Electric Company, Inc.	830 Phillips Rd.	Victor	NY	14564	(585) 924-4973	Installation; design; engineering; consulting
Oprans Universal Corporation	One Mustang Dr.	Cohoes	NY	12047	(518) 782-2332	Manufacturer
Quality Solar Concepts Inc.	47 Tearose Meadow Lane	Brockport	NY	14420	(585) 278-3773	Installation; design; engineering; consulting
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Rv Solar Shop	2917 State HW 7	Bainbridge	NY	13733	(800) 653-8540	Manufacturer
Savant Solar LLC	144 Crescent Dr.	Albertson	NY	11507	(516) 974-7600	Installation; design; engineering; consulting
Smart Building Products and Services	1180 Route 32	Wallkill	NY	12589	(845) 566-9329	Engineering services
SolarSmart	224 West 30th St., 4th Floor	New York	NY	10001	(212) 564-4400	Manufacturing; consulting; installation
Stoneworks Inc.	135 West 96th St., Apt. 5-D	New York	NY	10025	(212) 222-8743	Retailer; service; importer
Sun Power Systems	1217 Montauk Highway	Oakdale	NY	11769	(631) 750-9454	Retailer
The Lighting Co.	PO Box 283	Summit	NY	12175	(518) 287-1934	Manufacturer; wholesaler
<b>Marine Power Systems</b>						
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Power Equipment Sales Intl.	3333 Henry Hudson Pkwy.	Riverdale	NY	10463	(201) 805-1441	Wholesaler
Stork H&E Turbo Blading, Inc.	334 Comfort Rd.	Ithaca	NY	14850	(607) 277-4968	Manufacturer
Wastecorp.	PO Box 70	Grand Island	NY	14072	(888) 829-2783	Manufacturer
<b>Meters and Measuring Equipment</b>						
Advanced Solar	22 Fairway Dr.	Port Jefferson	NY	11776	(631) 642-7435	Retailer
Cal Research, Inc.	4271 Dickersonville Rd.	Ransomville	NY	14131	(716) 791-4206	Manufacturer; on-site testing; wholesaler
Kipp and Zonen	125 Wilbur Place	Bohemia	NY	11716	(516) 589-2065	Manufacturer; retailer; maintenance; repair
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Pacific Power Systems	234 Lake Dr.	Copiapague	NY	11726	(631) 264-0130	Manufacturer
Sustainable Energy Developments, Inc.	317 Route 104	Ontario	NY	14519	(877) 946-3674	Project development; construction; maintenance
<b>Ocean Energy Systems</b>						
Renewable NRG LLC	PO Box 1117	Woodstock	NY	12498	(845) 657-6655	Manufacturer
Toko Asia Wind Energy	198-11 47th Ave., FL1	Flushing	NY	11358	(718) 767-3168	Manufacturer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Packaged Power Systems</b>						
Canrom Photovoltaics	1654 Ontario Ave.	Niagara Falls	NY	14305	(716) 282-2975	Manufacturer; installation; design
MDS Technical Service	3530 Rt 34B	Scipio Center	NY	13147	(315) 364-5270	Consulting; design; installation
National Solar Technologies	166 Taylor Dr.	Depew	NY	14043	(800) 310-7413	Manufacturer
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
Power Equipment Sales Intl.	3333 Henry Hudson Pkwy.	Riverdale	NY	10463	(201) 805-1441	Wholesaler
Self-Reliant Systems	414 Barton Hill Rd.	Schoharie	NY	12157	(518) 295-8256	Installation; design; construction; retailer
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
TerraSolar	44 Court St., Tower B	Brooklyn	NY	11201	(718) 422-0100	System design; wholesaler; retailer; service
<b>Portable Power Systems</b>						
Alternative Traxx	PO Box 63	New Berlin	NY	12411	(607) 764-8229	Retailer
Altpower, Inc.	125 Maiden Lane, Suite 307	New York	NY	10038	(212) 206-0022	Construction; service; retailer
Canrom Photovoltaics	1654 Ontario Ave.	Niagara Falls	NY	14305	(716) 282-2975	Manufacturer; installation; design
Fuel Cell Industry Report	28 West 25th St., 8th Floor	New York	NY	10010	(212) 228-0246	Publisher
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
Renewable Resources, LLC	22 Pleasant Ridge Rd.	Valhalla	NY	10595	(914) 345-6100	Retailer; wholesaler
<b>Radiant Heating Systems</b>						
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
Aaron Becker Solar	PO Box 563	Poughquag	NY	12570	(845) 724-3994	Installation
Duce Construction Corp.	412 West 127th St.	New York	NY	10027	(212) 316-2400	Construction; installation
Eagle Mountain, Inc.	4353 Bristol Valley Rd.	Canandaigua	NY	14424	(800) 572-7831	Manufacturer; wholesaler; retailer
Radiant Floor Heating	85 West Ave.	Hamburg	NY	14075	(716) 649-5723	Wholesaler
<b>Recreational Vehicle Power Systems</b>						
Advanced Solar	22 Fairway Dr.	Port Jefferson	NY	11776	(631) 642-7435	Retailer
Four Winds Renewable Energy	8902 Route 46	Arkport	NY	14807	(607) 324-9747	System design; installation; service; retailer
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2244	Consulting; design; maintenance; wholesaler

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Remote Home Power Systems</b>						
ETM Solar Works	PO Box 67	Endicott	NY	13760	(607) 785-6499	Consulting; design; installation; construction
New York Solar Authority	65-69 Parsons Blvd.	Flushing	NY	11365	(888) 479-9163	Construction; installation
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
Rao Services	2937 41 Ave., 2nd Floor-Suite 1	Long Island City	NY	11101	(718) 726-0411	Consulting; project development; import/export
Self-Reliant Systems	414 Barton Hill Rd.	Schoharie	NY	12157	(518) 295-8256	Construction; installation; maintenance; repair
Sun Mountain	PO Box 1364	Olivebridge	NY	12461	(845) 657-8096	Retailer
<b>Renewable Energy Investment/Financial Services</b>						
New Alternatives Fund	150 Broadhollow Rd.	Melville	NY	11747	(800) 423-8383	Mutual Fund
Broms Power LLC	215 East 79th St.	New York	NY	10021	(212) 988-9460	Investment and financial services
<b>Renewable Energy Publications</b>						
Megawatt Motorworks	249 Midline Rd.	Slaterville Springs	NY	14881	(607) 539-9968	Publisher
The Hydrogen & Fuel Cell Letter	69 Grinnell St.	Rhinecliff	NY	12574	(914) 876-5988	Publisher
<b>Solar Energy</b>						
Aaron Becker Solar	PO Box 563	Poughquag	NY	12570	(845) 724-3994	Installation
Abundant Energy, Inc.	PO Box 307	Pine Island	NY	10969	(800) 426-4859	Manufacturer
Accord Electric, LLC	PO Box 44	Schuyler Falls	NY	12524	(518) 314-6336	Installation
Adirondack Solar	1004 New Scotland Rd.	Albany	NY	12208	(877) 407-3356	Installation
Advanced Energy Design, LLC	9 Nursery Rd.	Melville	NY	11747	(631) 379-9810	Installation
Advanced Solar	22 Fairway Dr.	Port Jefferson	NY	11776	(631) 642-7435	Retailer
AeonSolar	266 E. 95th St. #104	New York	NY	10128	(917) 496-4439	Installation
AET Solar	50 Patten Rd.	Newburgh	NY	12550	(845) 728-3881	Consulting services
Alternative Power and Light	PO Box 220	Port Jefferson	NY	11776	(631) 331-7643	Installation
Alternative Power Systems	PO Box 106	Harrisville	NY	13648	(315) 543-7011	Installation
Altpower, Inc.	125 Maiden Lane, Suite 307	New York	NY	10038	(212) 206-0022	Construction; service; retailer
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave., Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
APEX Thermal Services	27 Blossom Grove Court	Highland	NY	12528	(845) 883-6066	Installation; system design; retailer
Aquasolar Corp.	465 East 10th St.	New York	NY	10009	(212) 673-6222	Manufacturer; installation; design; distributor
Atlantis Custom Pools	171 Huber Ave.	Holbrook	NY	11741	(631) 445-4508	Retailer
AY Solar	509 Alpine Dr.	Vestal	NY	13850	(607) 760-8176	Installation

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Best Energy Power	375 Pearsall Ave.	Cedarhurst	NY	11516	(516) 568-7785	Installation
Bishop Enterprises	131 Hickok Ave.	Syracuse	NY	13206	(315) 463-9017	Consulting; installation; retailer
Brunswick Electric, Inc.	290 Hoosick St.	Troy	NY	12180	(518) 270-3695	Installation
Canrom Photovoltaics	1654 Ontario Ave.	Niagara Falls	NY	14305	(716) 282-2975	Manufacturer; installation; design; distributor
Conserval Systems, Inc.	4254 Ridge Lea Rd.	Buffalo	NY	14226	(716) 835-4903	Manufacturer
Creative Energy Technologies Inc.	2872 State Rt. 10	Summit	NY	12175	(518) 287-1428	Retailer
Crest Solar Power Solutions	160 Brinton Rd.	Keeseville	NY	12944	(518) 578-1487	Installation
Damiani and Sun, Inc.	109 Steven Court	Monroe	NY	10950	(845) 783-6020	Installation
DAYSTAR Energy Systems, Inc.	Five Cliffordale Park	Rochester	NY	14609	(585) 224-9105	Installation; maintenance; retailer
Daystar Technologies	13 Corporate Dr.	Halfmoon	NY	12065	(518) 383-4600	Manufacturer
Direct Global Power Inc.	1462 Erie Blvd.	Schenectady	NY	12305	(518) 346-2478	Manufacturer; project development; consulting
Divine Renewable Energy LLC	2569 Rolling Hills Rd.	Camillus	NY	13031	(315) 672-5244	Installation
Dovetail Builders, LLC	53 McGrath Rd.	Berkshire	NY	13736	(607) 951-0738	Installation
Duce Construction Corp.	412 West 127th St.	New York	NY	10027	(212) 316-2400	Construction; installation
EarthKind Energy, Inc.	110 Long Pond Rd.	Rhinebeck	NY	12572	(845) 266-3723	Consulting; project development
EBM Consulting Services	PO Box 911	Millbrook	NY	12545	(845) 877-6030	Installation; design; consulting; maintenance
Electric Transportation Solutions	100 South Bedford Rd.	Mount Kisco	NY	10549	(866) 895-2238	Wholesaler; retailer; importer/exporter
Empire Clean Energy Supply	1520 Ocean Ave.	Bohemia	NY	11716	(631) 589-4340	Manufacturer; wholesaler
EmPower CES, LLC	223 Long Beach Rd.	Island Park	NY	11558	(516) 837-3459	Installation
Energy By Choice, Ltd.	4 Ridley Court	Greenlawn	NY	11740	(631) 757-6984	Installation
Environmental Technologies & Solutions, Inc.	PO Box 283, Route 55	Lagrangeville	NY	12540	(845) 240-0843	Manufacturer; wholesaler
ETM Solar Works	PO Box 67	Endicott	NY	13760	(607) 785-6499	Consulting; design; installation; construction
ETS Energy Store	445 Hamilton Ave., Suite 1102	White Plains	NY	10601	(866) 343-5551	Retailer; wholesaler; consulting
e-vanhee	700 Hollenbeck St.	Rochester	NY	14621	(585) 266-1382	Installation; design; engineering; service
Fala Technologies	430 Old Neighborhood Rd.	Kingston	NY	12401	(845) 336-4000	Manufacturer; engineering
Fanour Electronics	243 West 123rd St., Suite 1	New York	NY	10027	(212) 932-9865	Consulting services; exporter
Finger Lakes Renewable Energy, LLC	192 S. Van Dorn Rd.	Ithaca	NY	14850	(607) 327-0053	Installation
Finlo Renewable Energy	236A Duriee Hill Rd.	Ithaca	NY	14850	(607) 227-9759	Installation
Four Winds Renewable Energy	8902 Route 46	Arkport	NY	14807	(607) 324-9747	System design; installation; service; retailer
Gallagher Solar Thermal	57 West St.	Warwick	NY	10990	(845) 258-0749	Installation
Genersys Plc	165 West 91st St., Suite 2G	New York	NY	10024	(609) 933-6826	Manufacturer
Go Solar	272 Main Rd.	Riverhead	NY	11901	(631) 727-2224	Installation; service
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
Greenlogic, LLC	34 Squires Path	East Hampton	NY	11937	(631) 771-5152	Installation

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
GreenStreet Construction and Consulting	630 9th Ave., Suite 213	New York	NY	10036	(212) 265-5179	Construction; consulting
Heliocol New York	304 Mulberry St	New York	NY	10012	(646) 246-6522	Retailer
High Power Construction	51-20 35th St.	Long Island City	NY	11101	(212) 288-0436	Installation
HOTBOX SOLAR	PO Box 2220	Elmira Heights	NY	14903	(607) 731-2741	Manufacturer
Hudson Valley Clean Energy	13 Hook Rd.	Rhinebeck	NY	12572	(845) 876-3767	Installation; design; service
Hudson Valley Clean Energy	PO Box 1221	New Paltz	NY	12561	(877) 876-4823	Installation
Interior Environments	854 Mclean Ave.	Yonkers	NY	10704	(914) 237-7200	Retailer
ISI Solar	PO Box 636	Nyack	NY	10960	(845) 348-4708	Installation
Kiss + Cathcart, Architects	44 Court St., Tower C	Brooklyn	NY	11201	(718) 237-2025	Consulting; design; engineering; architecture
Luce Creative, Inc.	1393 Veterans Memorial Highway	Hauppauge	NY	11788	(631) 366-2705	Consulting
Marsland Renewable Energy	62 Birdsall St.	Greene	NY	13778	(607) 656-7584	Retailer
Mattergy Solar	766 Main St.	New Rochelle	NY	10805	(914) 633-1192	Installation; consulting; design; engineering
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Mercury Solar System	15 Colligni Ave.	New Rochelle	NY	10801	(914) 637-9700	Installation; design; project development
National Solar Technologies	166 Taylor Dr.	Depew	NY	14043	(800) 310-7413	Manufacturer
New West Technologies	414 Trenton Ave.	Utica	NY	13502	(315) 507-4771	Engineering; consulting; design
New York Solar Authority	65-69 Parsons Blvd.	Flushing	NY	11365	(888) 479-9163	Construction; installation
New York State Solar Energy Industries Association	PO Box 67	Endicott	NY	13760	(607) 785-6499	Trade association
New York Wind & Sun, LLC	127 Hunter Dr.	Baldwinsville	NY	13027	(315) 433-1803	Construction; installation
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
Northeast Emergency Power	3602 Stetson Rd.	Bloomfield	NY	14469	(585) 657-4294	Installation
O'Connell Electric Company	830 Phillips Rd.	Victor	NY	14564	(585) 924-4973	Installation; consulting; design; maintenance
Performance Systems Contracting	124 Brindley St., Suite 4	Ithaca	NY	14850	(607) 277-1472	Installation
Plattsburgh Electric	206 Tom Miller Rd	Plattsburgh	NY	12901	(518) 562-1058	Installation
Power2020	160 West 73rd St., Suite 2H	New York	NY	10023	(212) 362-4332	Installation; consulting; project development
Prism Solar Technologies	23 Coxing Rd.	Cottkill	NY	12419	(845) 943-5377	Manufacturer
Quality Solar Concepts Inc.	47 Tearose Meadow	Brockport	NY	14420	(585) 278-3773	Installation; consulting; design; maintenance
Quixotic Systems, Inc.	90 Bedford St., Suite A	New York	NY	10014	(212) 367-9161	Installation
RDS Industries, Inc.	43-01 162nd St.	Flushing	NY	11358	(718) 321-9000	Installation
Renewable Energy Works!	290 Genesee St.	Avon	NY	14414	(585) 226-2920	Workshops
Renewable Power Systems, LLC	PO Box 967	Averill Park	NY	12018	(518) 674-5808	Installation
Renovus Energy Systems	102 Cherry St.	Ithaca	NY	14850	(607) 277-1777	Installation; design; reseller
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Rv Solar Shop	2917 State HW 7	Bainbridge	NY	13733	(800) 653-8540	Manufacturer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Savant Solar LLC	144 Crescent Dr.	Albertson	NY	11507	(516) 974-7600	Installation; consulting; project design; research
Sea Bright Solar	465 45th St., Suite 1	Brooklyn	NY	11220	(914) 588-7739	Installation
Self-Reliant Systems	414 Barton Hill Rd.	Schoharie	NY	12157	(518) 295-8256	Installation; design; maintenance; repair
Shine International Corp.	110 East 59th St.	New York	NY	10022	(212) 688-3636	Business development
Silicon Solar	2917 State HW 7	Bainbridge	NY	13733	(607) 563-7865	Manufacturer; wholesaler; retailer
SolarSmart	224 West 30th St., 4th Floor	New York	NY	10001	(212) 564-4400	Manufacturer; consulting; installation
Solar and Wind FX	5515 South Hill Rd.	Canandaigua	NY	14424	(585) 229-2083	Installation
Solar Electric Systems	13951 Groth Rd.	Springville	NY	14141	(716) 592-8414	Installation; service; retailer
Solar Energy Management Inc.	75 Rustic Hills Rd.	Westbrookville	NY	12785	(845) 549-5370	Installation
Solar Energy Systems	1205 Manhattan Ave.	Brooklyn	NY	11222	(718) 389-1545	Retailer
Solar Energy Systems, LLC	245 Saw Mill Rd., Suite #106	Hawthorne	NY	10532	(914) 623-0390	Installation
Solar Generation, Inc.	43 Mill Hill Rd.	Woodstock	NY	12498	(845) 417-6853	Installation
Solar Liberty Energy Systems	6225 Sheridan Dr., Suite 102	Williamsville	NY	14221	(716) 634-3780	Installation; system design; distributor
Solar Power New York Inc.	PO Box 44	Orchard Park	NY	14127	(877) 765-2769	Installation; system design
Solar Thin Films*	25 Highland Ave.	Dix Hills	NY	11746	(516) 417-8454	Manufacturer; project management
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Solar Works Inc.	48 Elm St.	Albany	NY	12202	(413) 441-0682	Installation
Solar Works, Inc.	31 Pearl St.	Kerhonkson	NY	12446	(845) 392-3370	Installation
Solar Wrights, Inc	45 Pinewood Ave.	Saratoga Springs	NY	12866	(518) 580-8601	Installation
Solarias, Inc.	111 Railroad Ave.	Middletown	NY	10940	(845) 699-5543	Installation
Sun Mountain	PO Box 1364	Olivebridge	NY	12461	(845) 657-8096	Retailer
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
SunDog Solar	PO Box 348	Chatham	NY	12037	(518) 392-4000	Installation
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2244	Consulting; design; maintenance; wholesaler
Sun Stream USA	1764 County Rd. 39	Southampton	NY	11968	(631) 283-0057	Installation
Sunrise Energy Products	26 Laurel Ave.	East Islip	NY	11757	(631) 226-7846	Design; project development
Sunshine Solar Technologies	471 N. Broadway	Jericho	NY	11753	(631) 615-4440	Installation; design; retailer
Sunwise Technologies	1155 Flatbush Rd.	Kingston	NY	12401	(800) 817-6527	Manufacturer; wholesaler
T-KAR Smart Energy Systems	12 Birch St.	Fishkill	NY	12524	(845) 225-8892	Installation
TerraSolar	44 Court St., Tower B	Brooklyn	NY	11201	(718) 422-0100	System design; wholesaler; retailer; service
The Lighting Co.	PO Box 283, Route 55	Summit	NY	12175	(518) 287-1934	Manufacturer; wholesaler
Triangle Electrical Systems	126 Idaho Ave.	Plattsburgh	NY	12903	(518) 562-5425	Installation
Upstate Energy Solutions	4316 State Route 414	Burdett	NY	14817	(607) 229-4176	Installation
Wayne Thomas Electric Corp.	183 Jerusalem Ave.	Massapequa	NY	11758	(516) 845-0316	Installation
Wiley Electronics, LLC*	PO Box 361	Saugerties	NY	12477	(845) 247-2875	Installation

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
World Power Components	147 Highland Ave.	New York	NY	11768	(866) 878-0026	Manufacturer; wholesaler
2K Solar Contracting*	492 Bart Bull Rd.	Middletown	NY	10941	(845) 673-5463	Installation
24 Hour Back Up Power Co.	PO Box 21	Baldwinsville	NY	13027	(315) 433-6058	Installation
<b>Steam Turbine Electric Generators</b>						
Ecopac Equipment, Inc.	306 South Salina St.	Syracuse	NY	13202	(315) 475-1580	Reseller; wholesaler; retailer
Innovative Control Systems, Inc.	26 Corporate Dr.	Clifton Park	NY	12065	(518) 383-8078	Installation; engineering; training
Stork H&E Turbo Blading, Inc.	334 Comfort Rd.	Ithaca	NY	14850	(607) 277-4968	Manufacturer
<b>Tankless Water Heating Systems</b>						
Creative Energy Technologies	2872 State Rd.	Summit	NY	12175	(518) 287-1428	Retailer
<b>Telecommunications Power Systems</b>						
Logic Box Industries, Inc.	60 Industrial Parkway, Unit 491	Buffalo	NY	14227	(866) 577-3628	Wholesaler; exporter
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
<b>Uninterruptible Power Supply UPS Systems</b>						
Advanced Solar	22 Fairway Dr.	Port Jefferson	NY	11776	(631) 642-7435	Retailer
Creative Global Network Services	200 Parkway Dr. South	Hauppauge	NY	11788	(866) 577-3628	Retailer
Logic Box Industries, Inc.	60 Industrial Parkway, Unit 491	Buffalo	NY	14227	(866) 577-3628	Wholesaler; exporter
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
New York Solar Authority	65-69 Parsons Blvd.	Flushing	NY	11365	(888) 479-9163	Construction; installation
Nextec Power Systems, Inc.	89 Cabot Court	Hauppauge	NY	11788	(631) 750-1000	Manufacturer; system design
Pacific Power Systems	234 Lake Dr.	Copiague	NY	11726	(631) 264-0130	Manufacturer
Peak Energy Systems, Inc.	309 Ralph Ave.	Copiague	NY	11726	(631) 789-1100	Installation; maintenance
RefurbUPS.com Inc.	379 Spook Rock Industrial Park	Suffern	NY	10901	(845) 357-6911	Wholesaler; retailer
Renewable Resources, LLC	22 Pleasant Ridge Rd.	Valhalla	NY	10595	(914) 345-6100	Retailer; wholesaler
Steven B Dietrich	151 Northern Blvd., Suite 1	St. James	NY	11780	(631) 584-6433	Manufacturer; power quality solutions
Sutton Design, Inc.	215 North Cayuga St.	Ithaca	NY	14850	(607) 277-4301	Manufacturer; wholesaler; retailer
UPSforLESS	2215 Kenmore Ave., Suite 100	Buffalo	NY	14207	(866) 577-3628	Reseller; distributor
<b>Waste Treatment Systems</b>						
Ecopac Equipment, Inc.	306 South Salina St.	Syracuse	NY	13202	(315) 475-1580	Reseller; wholesaler; retailer
Mars Tech	216 Strawtown Rd.	New City	NY	10956	(845) 638-3100	Manufacturer; wholesaler
Precision Process Equipment	2221 Niagara Falls Blvd.	Niagara Falls	NY	14304	(716) 731-1587	Manufacturer; engineering; product development

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Water Filtering/Purification Systems</b>						
Ace Pump Corp.	57 West 21st St.	New York	NY	10010	(212) 242-1787	Wholesaler; retailer; service
Atlantis Custom Pools Inc.	171 Huber Ave.	Holbrook	NY	11741	(631) 445-4508	Retailer
Ecopac Equipment, Inc.	306 South Salina St.	Syracuse	NY	13202	(315) 475-1580	Reseller; wholesaler; retailer
Mars Tech	216 Strawtown Rd.	New City	NY	10956	(845) 638-3100	Manufacturer; wholesaler
Tinkertown, Inc.	833 Route 244 Tinkertown Rd.	Alfred Station	NY	14803	(866) 845-5462	Installation; retailer
<b>Water Heating Systems</b>						
Aaron Becker Solar	PO Box 563	Poughquag	NY	12570	(845) 724-3994	Installation
AET Solar	50 Patten Rd.	Newburgh	NY	12550	(845) 728-3881	Consulting services
Ambrose Mechanical Services Corp.	71 Lake Meadow Dr.	Rochester	NY	14612	(585) 663-7826	Construction; installation; design
American Photovoltaics & Homes, Ltd.	5951 Riverside Ave., Suite 1199	Riverdale	NY	10471	(718) 548-0428	Manufacturer; wholesaler; retailer
Canrom Photovoltaics	1654 Ontario Ave.	Niagara Falls	NY	14305	(716) 282-2975	Manufacturer; installation; design; distributor
Creative Energy Technologies	2872 State Rd.	Summit	NY	12175	(518) 287-1428	Retailer
EBM Consulting Services	PO Box 911	Millbrook	NY	12545	(845) 877-6030	Installation; design; consulting; maintenance
ETM Solar Works	PO Box 67	Endicott	NY	13760	(607) 785-6499	Consulting; design; installation; construction
e-vanhee	700 Hollenbeck St.	Rochester	NY	14621	(585) 266-1382	Installation; design; engineering; service
Genersys Plc	165 West 91st St., Suite 2G	New York	NY	10024	(609) 933-6826	Manufacturer
Go Solar	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2224	Installation; service
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
New York Wind & Sun, LLC	127 Hunter Dr.	Baldwinsville	NY	13027	(315) 433-1803	Construction; installation
Quality Solar Concepts Inc.	47 Tearose Meadow	Brockport	NY	14420	(585) 278-3773	Installation; consulting; design; maintenance
Radiant Floor Heating	85 West Ave.	Hamburg	NY	14075	(716) 649-5723	Wholesaler
Renovus Energy Systems	102 Cherry St.	Ithaca	NY	14850	(607) 277-1777	Installation; design; reseller
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Savant Solar LLC	144 Crescent Dr.	Albertson	NY	11507	(516) 974-7600	Installation; consulting; project design; research
Self-Reliant Systems	414 Barton Hill Rd.	Schoharie	NY	12157	(518) 295-8256	Installation; design; maintenance; repair
Solar Power New York Inc.	PO Box 44	Orchard Park	NY	14127	(877) 765-2769	Installation; system design
Solar Energy Management Inc.	75 Rustic Hills Rd.	Westbrookville	NY	12785	(845) 549-5370	Installation
Solar Works Inc.	87 Delafield St. #2	Poughkeepsie	NY	12601	(800) 223-8980	Engineering; design; project management
Sun Stream USA	1764 County Rd. 39	Southampton	NY	11968	(631) 283-0057	Installation
Wastecorp.	PO Box 70	Grand Island	NY	14072	(888) 829-2783	Manufacturer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
<b>Water Pumps</b>						
Tech-Quipment International	560 West 43rd St., Suite 10J	New York	NY	10036	(860) 796-7989	Wholesaler; exporter
Wastecorp.	PO Box 70	Grand Island	NY	14072	(888) 829-2783	Manufacturer
<b>Water Pumping Windmills</b>						
US Wind Energy Corporation	4230 East Lake Rd.	Wilson	NY	14172	NA	Installation; consulting; project development
WINDTech International, LLC	PO Box 27	Bedford	NY	10506	(914) 232-2354	Manufacturer; retailer; service
<b>Water Storage Tanks</b>						
Wastecorp.	PO Box 70	Grand Island	NY	14072	(888) 829-2783	Manufacturer
<b>Wind Energy</b>						
AeroCity	22 Rte. 23	Claverack	NY	12513	(518) 697-0633	Manufacturer
Alternative Energy Solutions, LLC	163 North Main St., Suite 202	Port Chester	NY	10573	(914) 937-0608	Construction; installation
Alternative Traxx	PO Box 63	New Berlin	NY	12411	(607) 764-8229	Retailer
Altpower, Inc.	125 Maiden Lane, Suite 307	New York	NY	10038	(212) 206-0022	Construction; service; retailer
Aura: Custom Wind Energy Solutions	449 Rt 25A, Suite 105	Mount Sinai	NY	11766	(631) 681-2866	Installation; maintenance; repair; site survey
AWS Truewind, LLC	255 Fuller Rd., Suite 274	Albany	NY	12203	(518) 437-8660	Wind forecasting/mapping; feasibility studies
Bishop Enterprises	131 Hickok Ave.	Syracuse	NY	13206	(315) 463-9017	Consulting; installation; retailer
BlueSkyWind, LLC	10 New King St.	White Plains	NY	10604	(914) 949-2292	Manufacturer; project development
Broms Power LLC	215 East 79th St.	New York	NY	10021	(212) 988-9460	Investment and financial services
DAYSTAR Energy Systems, Inc.	Five Cliffordale Park	Rochester	NY	14609	(585) 224-9105	Installation; maintenance; retailer
EBM Consulting Services	PO Box 911	Millbrook	NY	12545	(845) 877-6030	Installation; design; consulting; maintenance
Electric Transportation Solutions	100 South Bedford Rd.	Mount Kisco	NY	10549	(866) 895-2238	Wholesaler; retailer; importer/exporter
ETM Solar Works	533 Woodford Ave	Endicott	NY	13760	(607) 785-6499	Installation
Fala Technologies	430 Old Neighborhood Rd.	Kingston	NY	12401	(845) 336-4000	Manufacturer; engineering
Fortis America, LLC	102 Cherry St.	Ithaca	NY	14850	(607) 277-1277	Manufacturer; consulting; design
Four Winds Renewable Energy	8902 Route 46	Arkport	NY	14807	(607) 324-9747	System design; installation; service; retailer
GE Energy	1 River Rd.	Schenectady	NY	12345	(518) 385-7343	Manufacturer; system design; consulting
Go Solar	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2224	Installation; service
Great Brook Renewable Energy	819 County Road 28	South New Berlin	NY	13843	(607) 847-6366	Installation; service
Green Arc Energy	6519 Townpath Rd.	East Syracuse	NY	13057	(607) 351-2730	Installation
Hailo LLC Professional	6080 Jericho Turnpike #302	Commack	NY	11725	(877) 504-2456	Manufacturer; wholesaler
Hitachi America Ltd.	50 Prospect Ave.	Tarrytown	NY	10591	(914) 524-6640	Manufacturer

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
Innovative Metal Products	PO Box 278	Kenoza Lake	NY	12750	(845) 794-5113	Manufacturer
MDS Power Inc.	PO Box 532	Champlain	NY	12919	(514) 369-4919	Distributor
MDS Technical Service	3530 Rt 34B	Scipio Center	NY	13147	(315) 364-5270	Consulting; design; installation
New West Technologies*	414 Trenton Ave.	Utica	NY	13502	(315) 507-4771	Engineering; consulting; design
New York Wind & Sun, LLC	127 Hunter Dr.	Baldwinsville	NY	13027	(315) 433-1803	Construction; installation
Northeast Emergency Power Systems, Inc.	3602 Stetson Rd.	Bloomfield	NY	14469	(587) 657-8279	Installation
O'Connell Electric Company	830 Phillips Rd.	Victor	NY	14564	(585) 924-4973	Installation; consulting; design; maintenance
Power2020	160 West 73rd St., Suite 2H	New York	NY	10023	(212) 362-4332	Installation; consulting; project development
Prime Energy Technologies, Inc.	590 New York Ave.	Huntington	NY	11743	(800) 799-5005	Construction; installation; project development
Quality Solar Concepts Inc.	47 Tearose Meadow	Brockport	NY	14420	(585) 278-3773	Installation; consulting; design; maintenance
Renewable Energy Works!	290 Genesee St.	Avon	NY	14414	(585) 226-2920	Workshops
Renewable NRG LLC	PO Box 1117	Woodstock	NY	12498	(845) 657-6655	Manufacturer
Renovus Energy Systems	102 Cherry St.	Ithaca	NY	14850	(607) 277-1777	Installation; design; reseller
Rochester Solar Technologies	830 Phillips Rd.	Victor	NY	14564	(585) 924-2176	Installation; consulting; retailer
Rv Solar Shop	2917 State HW 7	Bainbridge	NY	13733	(800) 653-8540	Manufacturer
Sands Brothers & Co., Ltd.	90 Park Ave.	New York	NY	10016	(212) 953-4964	Project development; financial services
Self-Reliant Systems	414 Barton Hill Rd.	Schoharie	NY	12157	(518) 295-8256	Installation; design; maintenance; repair
Shine International Corp.	110 East 59th St.	New York	NY	10022	(212) 688-3636	Business development
Solar Energy Systems	1205 Manhattan Ave.	Brooklyn	NY	11222	(718) 389-1545	Retailer
Solar Rythms	10 Canaan Rd.	New Paltz	NY	12561	(845) 255-3454	Retailer
Stabylex Electronics Corp.	2 Trade Dr.	Massena	NY	13622	(315) 769-5453	Manufacturer; design; engineering
Sun Products	PO Box 806	Lindenhurst	NY	11757	(631) 226-7846	Design; project development; retailer; wholesaler
Sun Shack	63 Laurel Ave.	Riverhead	NY	11901	(631) 727-2244	Consulting; design; maintenance; wholesaler
Sun Stream USA	1764 County Rd. 39	Southampton	NY	11968	(631) 283-0057	Installation
Sustainable Energy Developments, Inc.	317 Route 104	Ontario	NY	14519	(877) 946-3674	Project development; construction; maintenance
TechnoSpin Inc.	601 W 26th St., Room 1260	New York	NY	10001	(212) 751-8336	Manufacturer; engineering; project development
The Delaney Group	2736 Rte. 30	Gloversville	NY	12078	(518) 661-5304	Installation; construction
The Louis Berger Group, Inc	One Seaport Plaza - 23rd Floor	New York	NY	10038	(212) 612-4341	Consulting; project development
Toko Asia Wind Energy	198-11 47th Ave., FL1	Flushing	NY	11358	(718) 767-3168	Manufacturer
Urban Green Energy	160 West End Ave. - 12J	New York	NY	10023	(917) 512-9777	Manufacturer; design; engineering; research
US Wind Energy Corporation	4230 East Lake Rd.	Wilson	NY	14172	NA	Installation; consulting; project development

**Table A-1: Directory of New York State Clean Energy Businesses by Product Line and Business Type**

<b>Business Name/Product Line</b>	<b>Street Address</b>	<b>Municipality</b>	<b>State</b>	<b>Zip Code</b>	<b>Phone Number</b>	<b>Business Type</b>
WINDTech International, LLC	PO Box 27	Bedford	NY	10506	(914) 232-2354	Manufacturer; retailer; service
<b>Source:</b> Source Guides Renewable Energy Business Directory ( <a href="http://energy.sourceguides.com">http://energy.sourceguides.com</a> ); NYSERDA's Solar/Wind Installer Directory ( <a href="http://www.powernaturally.org">www.powernaturally.org</a> ).						
<b>Adapted By:</b> New York State Department of Labor.						

Table A-2: Employment Activity in Industries Associated With Renewable & Energy Efficiency, New York State - 2007

NAICS	Industry	Firms	Employment	Job Trend: 2002 - 2007		Average Wage Per Worker - 2007	
				Net	Percent	Annual	Weekly
<b>Solar Installers</b>							
238160	Solar Reflecting Coating/Roof Application	779	6,311	-28	-0.4%	\$43,989	\$846
238220	Solar Heating Equipment Installation	6,149	52,518	8,219	18.6%	\$55,714	\$1,071
	<b>Total</b>	<b>6,928</b>	<b>58,829</b>	<b>8,191</b>	<b>16.2%</b>	<b>\$54,456</b>	<b>\$1,047</b>
<b>Wind Installers</b>							
237130	Wind Power Structure Construction	190	3,456	457	15.2%	\$79,708	\$1,533
<b>Solar Manufacturing</b>							
333414	Solar Heating Systems	19	840	-92	-9.9%	\$52,416	\$1,008
334413	Solar Cells/Photovoltaic Devices	82	9,557	-283	-2.9%	\$87,541	\$1,683
334519	Solarimeters	59	2,832	302	11.9%	\$62,393	\$1,200
335121	Solar Lighting Fixtures (Residential)	45	1,069	-489	-31.4%	\$47,490	\$913
335122	Solar Lighting Fixtures (Commercial)	38	1,588	-223	-12.3%	\$45,757	\$880
	<b>Total</b>	<b>243</b>	<b>15,886</b>	<b>-785</b>	<b>-4.7%</b>	<b>\$74,424</b>	<b>\$1,431</b>
<b>Wind Manufacturing</b>							
333611	Wind Turbines/Generators/Mills	10	3,221	-1,370	-29.8%	\$85,638	\$1,647
<b>Weatherization</b>							
238220	Plumbing, Heating, AC Contractors	6,149	52,518	8,219	18.6%	\$55,714	\$1,071
238310	Insulation Contractors	1,083	13,920	2,392	20.7%	\$60,947	\$1,173
238350	Window and Door Installation	2,975	13,354	1,453	12.2%	\$46,402	\$892
238290	Boiler and Pipe Insulation Installation	537	8,704	1,581	22.2%	\$71,848	\$1,382
238390	Foundation Damp proofing	442	3,968	-98	-2.4%	\$49,154	\$945
	<b>Total</b>	<b>11,186</b>	<b>92,464</b>	<b>13,647</b>	<b>17.2%</b>	<b>\$56,398</b>	<b>\$1,085</b>
<b>Energy Service Companies (ESCOs)</b>							
221119	Wind and Solar Power Generation	24	482	-171	-35.6%	\$81,610	\$1,569
541330	Engineering Services	2,252	32,358	2,123	7.0%	\$81,314	\$1,564
541690	Energy Consulting Services	964	3,453	1,035	42.8%	\$77,120	\$1,483
	<b>Total</b>	<b>3,240</b>	<b>36,293</b>	<b>2,987</b>	<b>9.0%</b>	<b>\$80,919</b>	<b>\$1,556</b>
<b>All Associated RE/EE Industries (Unduplicated)</b>		<b>15,648</b>	<b>157,611</b>	<b>14,908</b>	<b>10.4%</b>	<b>\$64,480</b>	<b>\$1,240</b>

**Note:** The industry titles listed are only a component of the entire NAICS classification. For example, solar heating equipment installation includes all HVAC businesses.

**Source:** New York State Department of Labor.

**APPENDIX B – SOLAR INSTALLATION SECTOR: NEW YORK STATE**

Table B1 -- Solar Installation: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
47-3013	Electrician Helpers	5%	\$ 30,910	\$ 22,560	\$ 37,340	Short-term OJT	HS
47-3015	Plumber Helpers	3%	\$ 29,420	\$ 21,210	\$ 37,230	Short-term OJT	HS
49-9098	Installation, Maintenance, and Repair Helpers	1%	\$ 29,150	\$ 19,330	\$ 37,300	Short-term OJT	HS/SC
53-7062	Laborers and Material Movers	1%	\$ 23,900	\$ 17,760	\$ 30,390	Short-term OJT	HS/SC
53-3033	Light Truck Drivers	1%	\$ 30,360	\$ 19,160	\$ 40,250	Short-term OJT	HS/SC
	<b>Middle-Skill</b>						
47-2061	Construction Laborers	2%	\$ 42,690	\$ 25,980	\$ 56,110	Moderate-term OJT	HS
41-4012	Sales Representatives	1%	\$ 57,350	\$ 32,790	\$ 87,010	Moderate-term OJT	HS/SC/C
49-9042	Maintenance and Repair Workers	1%	\$ 36,160	\$ 24,390	\$ 44,010	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
47-1011	First-Line Supervisors/Managers of Construction Trades	4%	\$ 70,950	\$ 47,610	\$ 88,580	Work Exp. Related Occupation	HS/SC
13-1051	Cost Estimators	2%	\$ 60,730	\$ 39,010	\$ 78,990	Work Exp. Related Occupation	HS/SC/C
47-2111	Electricians	22%	\$ 61,010	\$ 37,280	\$ 79,050	Long-term OJT	HS/SC
47-2152	Plumbers, Pipefitters, and Steamfitters	16%	\$ 57,180	\$ 35,360	\$ 72,440	Long-term OJT	HS/SC
49-9021	Heating, Air Conditioning, Refrigeration Mechanics/Installers	8%	\$ 45,490	\$ 29,420	\$ 55,880	Long-term OJT	HS/SC
47-2211	Sheet Metal Workers	4%	\$ 57,550	\$ 30,750	\$ 72,040	Long-term OJT	HS/SC
51-4121	Welders, Cutters, Solderers, and Brazers	1%	\$ 34,670	\$ 24,960	\$ 43,400	Long-term OJT	HS/SC
11-9021	Construction Managers	1%	\$ 113,290	\$ 67,870	\$ 156,030	Bachelor degree	HS/SC/C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor degree	C
11-1021	General and Operations Managers	2%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table B2 -- Solar Installation Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
Electrician Helpers	Apprentice Electrician, Electrician Assistant	Solar Energy System Installer Helper
Plumber Helpers	Plumber Assistant	Solar Energy System Installer Helper
Installation, Maintenance, and Repair Helpers	Solar Energy System Installer Helper, Electrical Assistant	Solar Energy System Installer Helper
Laborers and Material Movers	Material Handler, Warehouse Worker, Laborer, Loader	
Light Truck Drivers	Truck Driver	
<b>Middle-Skill</b>		
Construction Laborers	Construction Worker	
Sales Representatives	Contracts Specialist, Marketing Associate	Residential/Commercial Solar Sales Consultant
Maintenance and Repair Workers	Maintenance Electrician	Building Maintenance Engineer
<b>High-Skill</b>		
First-Line Supervisors/Managers of Const. Trades	Construction Foreman, Insulation Supervisor	Solar Installation Electrician Foreman, Weatherization Operations Manager
Cost Estimators	Construction Job Cost Estimator	
Electricians	Electric Wirer	Solar Energy System Installer, Solar Installation Electrician, Electrical System Installer
Plumbers, Pipefitters, and Steamfitters	Hot Water Heater Installer	Solar Energy System Installer, Green Plumber and Pipefitter
Heating, Air Cond., Refrigeration Mech./Installers	Solar Panel Technician, Solar Energy System Installer	Solar Energy System Installer
Sheet Metal Workers	HVAC Sheet Metal Specialist	Solar Energy System Installer, Wind Turbine Sheet Metal Worker
Welders, Cutters, Solderers, and Brazers	Welder, Electrical Solderer	Welder
Construction Managers	Construction Foreman, Roofing Contractor	
Accountants and Auditors	Accountant, Data Processing Auditor, Financial Auditor	
General and Operations Managers	Installation Superintendent, Site Operations Manager	

Table B3 -- Solar Installation Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
47-3013	Electrician Helpers	3,720	140	67	0.5	Tight
47-3015	Plumber Helpers	3,290	150	236	1.6	Tight
49-9098	Installation, Maintenance, and Repair Helpers	9,470	290	1,431	4.9	Adequate
53-7062	Laborers and Material Movers	96,430	3,090	5,281	1.7	Tight
53-3033	Light Truck Drivers	58,260	1,160	355	0.3	Tight
	<b>Middle-Skill</b>					
47-2061	Construction Laborers	54,770	1,190	193	0.2	Tight
41-4012	Sales Representatives	119,850	2,670	142	0.1	Tight
49-9042	General Maintenance and Repair Workers	94,990	780	203	0.3	Tight
	<b>High-Skill</b>					
47-1011	First-Line Supervisors/Mang. of Construction Trades	33,510	900	512	0.6	Tight
13-1051	Cost Estimators	10,090	390	66	0.2	Tight
47-2111	Electricians	40,000	1,580	191	0.1	Tight
47-2152	Plumbers, Pipefitters, and Steamfitters	28,040	1,070	1,241	1.2	Tight
49-9021	Heating, Air Cond., Refrig. Mechanics/Installers	18,390	450	249	0.6	Tight
47-2211	Sheet Metal Workers	6,490	240	370	1.5	Tight
51-4121	Welders, Cutters, Solderers, and Brazers	10,530	220	629	2.9	Tight
11-9021	Construction Managers	27,080	760	205	0.3	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

## **APPENDIX C – SOLAR MANUFACTURING SECTOR: NEW YORK STATE**

Table C1 -- Solar Manufacturing: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
51-9198	Production Helpers	1%	\$ 20,500	\$ 16,570	\$ 25,820	Short-term OJT	HS
53-7062	Laborers and Material Movers	1%	\$ 23,900	\$ 17,760	\$ 30,390	Short-term OJT	HS/SC
53-7051	Industrial Truck and Tractor Operators	1%	\$ 32,020	\$ 22,780	\$ 39,130	Short-term OJT	HS
43-5071	Shipping, Receiving, and Traffic Clerks	1%	\$ 27,530	\$ 19,270	\$ 34,510	Short-term OJT	HS/SC
51-2022	Electrical and Electronic Equipment Assemblers	8%	\$ 27,200	\$ 18,880	\$ 35,090	Short-term OJT	HS/SC
43-5061	Production, Planning, and Expediting Clerks	1%	\$ 44,480	\$ 31,090	\$ 53,130	Short-term OJT	HS/SC/C
53-7064	Packers and Packagers, Hand	1%	\$ 19,100	\$ 16,120	\$ 24,700	Short-term OJT	HS
43-5081	Stock Clerks and Order Fillers	1%	\$ 19,920	\$ 16,690	\$ 26,100	Short-term OJT	HS/SC
	<b>Middle-Skill</b>						
51-9061	Inspectors and Testers	3%	\$ 31,260	\$ 20,230	\$ 40,680	Moderate-term OJT	HS/SC
51-2041	Structural Metal Fabricators and Fitters	1%	\$ 32,940	\$ 21,240	\$ 45,520	Moderate-term OJT	HS/SC
49-9042	General Maintenance and Repair Workers	1%	\$ 36,160	\$ 24,390	\$ 44,010	Moderate-term OJT	HS/SC
51-9121	Coat, Paint & Spray Machine Setters, Oper./ Tenders	1%	\$ 30,330	\$ 21,590	\$ 37,340	Moderate-term OJT	HS
51-4011	Computer-Controlled Machine Tool Operators	1%	\$ 31,660	\$ 22,560	\$ 37,450	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
51-1011	First-Line Supervisors/Mang. of Production Workers	3%	\$ 52,860	\$ 36,180	\$ 65,240	Work Exp. Related Occupation	HS/SC
13-1023	Purchasing Agents	1%	\$ 57,640	\$ 39,850	\$ 71,000	Work Exp. Related Occupation	HS/SC/C
11-3051	Industrial Production Managers	1%	\$ 91,060	\$ 62,810	\$ 112,840	Work Exp. Related Occupation	HS/SC/C
43-1011	First-Line Supervisors/Managers of Office Workers	1%	\$ 51,650	\$ 36,910	\$ 63,540	Work Exp. Related Occupation	HS/SC/C
51-4121	Welders, Cutters, Solderers, and Brazers	1%	\$ 34,670	\$ 24,960	\$ 43,400	Long-term OJT	HS/SC
47-2211	Sheet Metal Workers	1%	\$ 57,550	\$ 30,750	\$ 72,040	Long-term OJT	HS/SC
51-4041	Machinists	1%	\$ 36,930	\$ 24,330	\$ 45,020	Long-term OJT	HS/SC
49-9021	Heating, Air Cond., & Refrig. Mechanics and Installers	1%	\$ 45,490	\$ 29,420	\$ 55,880	Long-term OJT	HS/SC
49-9041	Industrial Machinery Mechanics	1%	\$ 44,790	\$ 32,470	\$ 54,160	Long-term OJT	HS/SC
51-4111	Tool and Die Makers	1%	\$ 44,540	\$ 27,820	\$ 53,990	Long-term OJT	HS/SC
17-3026	Industrial Engineering Technicians	1%	\$ 50,570	\$ 33,920	\$ 67,230	Associate degree	HS/SC
17-2141	Mechanical Engineers	2%	\$ 73,060	\$ 53,090	\$ 88,360	Bachelor degree	C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor degree	C
11-1021	General and Operations Managers	1%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C
11-9041	Engineering Managers	2%	\$ 122,820	\$ 87,840	\$ 152,840	Bach. or higher + Work Exp.	C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table C2 -- Solar Manufacturing Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
Production Helpers	Machinist Helper, Manufacturing Helper	
Laborers and Material Movers	Material Handler, Warehouse Worker, Laborer, Loader	
Industrial Truck and Tractor Operators	Truck Driver, Forklift Operator	
Shipping, Receiving, and Traffic Clerks	Warehouseman, Receiving Mgr., Shipper, Ship/Rec. Clerk	
Electrical and Electronic Equipment Assemblers	Electrical Assembler, Factory Worker, Wirer	Solar Fabrication Technician
Production, Planning, and Expediting Clerks	Production Scheduler, Production Planner	
Packers and Packagers, Hand	Packer, Bagger, Packager, Shipping Clerk	
Stock Clerks and Order Fillers	Packer, Sales Representative, Stockroom Attendant	
<b>Middle-Skill</b>		
Inspectors and Testers	Elec. Tester, Semicond. Wafer Insp., Semicond. Packgs. Tester	
Structural Metal Fabricators and Fitters	Steelworker, Fabricator	
General Maintenance and Repair Workers	Electrical Mechanical Technician, Instrument & Controls Tech.	Building Maintenance Engineer
Coat, Paint & Spray Mach. Setters, Oper./ Tenders	Painter, Hand Sprayer, Industrial Painter, Powder Coater	
Computer-Controlled Machine Tool Operators	Computer Num. Control Mach., Auto.Cutting Machine Operator	
<b>High-Skill</b>		
First-Line Supervisors/Mang. of Prod. Workers	Production Supervisor, Manufacturing Supervisor	
Purchasing Agents	Contracts Manager, Purchasing Agent, Merchandiser	
Industrial Production Managers	Supervisor, Manager, Plant Superintendent	Solar Thermoelectric Plant Manager, Wind Field Operations Manager
First-Line Supervisors/Managers of Office Workers	Office Manager, Office Supervisor, Director, Admin. Supervisor	Weatherization Operations Manager
Welders, Cutters, Solderers, and Brazers	Electric Arc Welder, Electric Spot Welder	Welder
Sheet Metal Workers	HVAC Sheet Metal Specialist, Metal Worker	Solar Energy System Installer, Wind Turbine Sheet Metal Worker
Machinists	Electrical Instrument Maker	Wind Turbine Machinist
Heating, Air Cond., & Refrig. Mechanics and Installers	Heating Sys. Installer, Renewable Energy Technician	Solar Energy System Installer, Field Tech., HVAC Service Tech.
Industrial Machinery Mechanics	Water/Power Generation Plant Mach. Maint. Mech., Ind. Elec.	Wind Field Tech., Wind Generating Installer, Wind Field Service Tech.
Tool and Die Makers	Toolsmith, Electronic Die Maker	
Industrial Engineering Technicians	Industrial Engineer, Manufacturing Engineer	
Mechanical Engineers	Solar Energy Systems Designer, Solar Engineer	Wind Turbine Mechanical Engineer
Accountants and Auditors	Accountant, Data Processing Auditor, Financial Auditor	
General and Operations Managers	District Plant Superintend., Elec. Superintend., Oper. Supervisor	
Engineering Managers	Chief Engineer, Electrical Engineering Director, Plant Engineer	Director of Wind Development

Table C3 -- Solar Manufacturing Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
51-9198	Production Helpers	17,870	440	3,463	7.9	Surplus
53-7062	Laborers and Material Movers	96,430	3,090	5,281	1.7	Tight
53-7051	Industrial Truck and Tractor Operators	19,450	490	393	0.8	Tight
43-5071	Shipping, Receiving, and Traffic Clerks	41,490	990	883	0.9	Tight
51-2022	Electrical and Electronic Equipment Assemblers	13,020	220	127	0.6	Tight
43-5061	Production, Planning, and Expediting Clerks	16,320	440	1,381	3.1	Adequate
53-7064	Packers and Packagers, Hand	31,640	390	213	0.5	Tight
43-5081	Stock Clerks and Order Fillers	104,850	2,490	5,493	2.2	Tight
	<b>Middle-Skill</b>					
51-9061	Inspectors and Testers	19,920	300	1,025	3.4	Adequate
51-2041	Structural Metal Fabricators and Fitters	3,060	50	180	3.6	Adequate
49-9042	General Maintenance and Repair Workers	94,990	780	203	0.3	Tight
51-9121	Coating, Painting & Spraying Setters, Oper./Tenders	2,720	50	80	1.6	Tight
51-4011	Computer-Controlled Machine Tool Operators	4,090	50	73	1.5	Tight
	<b>High-Skill</b>					
51-1011	First-Line Supervisors/Mang. of Production Workers	28,470	480	129	0.3	Tight
13-1023	Purchasing Agents	14,360	310	137	0.4	Tight
11-3051	Industrial Production Managers	6,200	210	275	1.3	Tight
43-1011	First-Line Supervisors/Managers of Office Workers	106,400	2,230	2,034	0.9	Tight
51-4121	Welders, Cutters, Solderers, and Brazers	10,530	220	629	2.9	Tight
47-2211	Sheet Metal Workers	6,490	240	370	1.5	Tight
51-4041	Machinists	14,480	220	81	0.4	Tight
49-9021	Heating, Air Cond. & Refrig. Mechanics and Installers	18,390	450	249	0.6	Tight
49-9041	Industrial Machinery Mechanics	9,770	160	2,983	18.6	Surplus
51-4111	Tool and Die Makers	4,020	50	172	3.4	Adequate
17-3026	Industrial Engineering Technicians	2,750	50	297	5.9	Adequate
17-2141	Mechanical Engineers	9,480	210	404	1.9	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight
11-9041	Engineering Managers	7,910	160	1,157	7.2	Surplus

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

**APPENDIX D – WIND INSTALLATION SECTOR: NEW YORK STATE**

Table D1 -- Wind Installation: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
53-7062	Laborers and Material Movers	1%	\$ 23,900	\$ 17,760	\$ 30,390	Short-term OJT	HS/SC
49-9098	Installation, Maintenance, and Repair Helpers	1%	\$ 29,150	\$ 19,330	\$ 37,300	Short-term OJT	HS/SC
	<b>Middle-Skill</b>						
47-2061	Construction Laborers	20%	\$ 42,690	\$ 25,980	\$ 56,110	Moderate-term OJT	HS
47-2073	Operating Eng. & Other Const. Equip. Operators	11%	\$ 57,020	\$ 36,690	\$ 74,110	Moderate-term OJT	HS/SC
53-3032	Truck Drivers, Heavy and Tractor-Trailer	3%	\$ 40,090	\$ 28,130	\$ 49,550	Moderate-term OJT	HS/SC
47-2051	Cement Masons and Concrete Finishers	1%	\$ 50,540	\$ 31,350	\$ 65,280	Moderate-term OJT	HS
49-9042	General Maintenance and Repair Workers	1%	\$ 36,160	\$ 24,390	\$ 44,010	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
49-3042	Mobile Heavy Equipment Mechanics	1%	\$ 45,150	\$ 31,140	\$ 53,410	Post Secondary Voc. Training	HS/SC
13-1051	Cost Estimators	1%	\$ 60,730	\$ 39,010	\$ 78,990	Work Exp. Related Occupation	HS/SC/C
47-1011	First-Line Supervisors of Construction Trades	6%	\$ 70,950	\$ 47,610	\$ 88,580	Work Exp. Related Occupation	HS/SC
49-1011	First-Line Supervisors of Mechanics/Installers	2%	\$ 64,650	\$ 44,540	\$ 77,670	Work Exp. Related Occupation	HS/SC
49-9051	Electrical Power-Line Installers and Repairers	6%	\$ 69,910	\$ 47,420	\$ 75,590	Long-term OJT	HS/SC
47-2031	Carpenters	2%	\$ 47,350	\$ 30,270	\$ 63,340	Long-term OJT	HS/SC
51-4121	Welders, Cutters, Solderers, and Brazers	1%	\$ 34,670	\$ 24,960	\$ 43,400	Long-term OJT	HS/SC
47-2111	Electricians	1%	\$ 61,010	\$ 37,280	\$ 79,050	Long-term OJT	HS/SC
47-2221	Structural Iron and Steel Workers	1%	\$ 75,300	\$ 40,890	\$ 88,120	Long-term OJT	HS/SC
11-9021	Construction Managers	2%	\$ 113,290	\$ 67,870	\$ 156,030	Bachelor degree	HS/SC/C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor degree	C
11-1021	General and Operations Managers	2%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table D2 -- Wind Installation Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
Laborers and Material Movers	Material Handler, Warehouse Worker, Laborer	
Installation, Maintenance, and Repair Helpers	Electrical Assistant	
<b>Middle-Skill</b>		
Construction Laborers	Construction Worker	
Oper. Engineers & Other Const. Equip. Operators	Heavy Machinery Operator	
Truck Drivers, Heavy and Tractor-Trailer	Heavy Truck Driver	
Cement Masons and Concrete Finishers	Mason	
General Maintenance and Repair Workers	Industrial Mechanic	Building Maintenance Engineer
<b>High-Skill</b>		
Mobile Heavy Equipment Mechanics	Construction Equipment Mechanic	
Cost Estimators	Construction Job Cost Estimator	
First-Line Supervisors of Construction Trades	Construction Foreman, Field Assembly Supervisor	Solar Installation Electrician Foreman, Weatherization Operations Mgr.
First-Line Supervisors of Mechanics/Installers	Equipment Maintenance Supervisor	Weatherization Operations Manager
Electrical Power-Line Installers and Repairers	Lineman	
Carpenters	Form Builder, Carpenter	Carpenters
Welders, Cutters, Solderers, and Brazers	Welder, Brazer	Welder
Electricians	Electric Wireman	Solar Energy System Installer, Solar Installation Elect., Elec. Sys. Installer
Structural Iron and Steel Workers	Steel Construction Worker, Structural Steel Fitter	
Construction Managers	Construction Foreman	
Accountants and Auditors	Accountant, Data Processing Auditor, Financial Auditor	
General and Operations Managers	Installation Superintendent, Site Operations Manager	

Table D3 -- Wind Installation Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
53-7062	Laborers and Material Movers	96,430	3,090	5,281	1.7	Tight
49-9098	Installation, Maintenance, and Repair Helpers	9,470	290	1,431	4.9	Adequate
	<b>Middle-Skill</b>					
47-2061	Construction Laborers	54,770	1,190	193	0.2	Tight
47-2073	Operating Engineers & Other Const. Equip. Operators	15,070	440	288	0.7	Tight
53-3032	Truck Drivers, Heavy and Tractor-Trailer	60,650	1,110	3,762	3.4	Adequate
47-2051	Cement Masons and Concrete Finishers	5,930	290	2,535	8.7	Surplus
49-9042	General Maintenance and Repair Workers	94,990	780	203	0.3	Tight
	<b>High-Skill</b>					
49-3042	Mobile Heavy Equipment Mechanics	3,600	90	70	0.8	Tight
13-1051	Cost Estimators	10,090	390	66	0.2	Tight
47-1011	First-Line Supervisors of Construction Trades	33,510	900	512	0.6	Tight
49-1011	First-Line Supervisors of Mechanics/Installers	23,450	560	88	0.2	Tight
49-9051	Electrical Power-Line Installers and Repairers	4,680	170	189	1.1	Tight
47-2031	Carpenters	69,260	2,000	2,840	1.4	Tight
51-4121	Welders, Cutters, Solderers, and Brazers	10,530	220	629	2.9	Tight
47-2111	Electricians	40,000	1,580	191	0.1	Tight
47-2221	Structural Iron and Steel Workers	4,620	190	146	0.8	Tight
11-9021	Construction Managers	27,080	760	205	0.3	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

**APPENDIX E – WIND MANUFACTURING SECTOR: NEW YORK STATE**

Table E1 -- Wind Manufacturing: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
53-7062	Laborers and Material Movers	1%	\$ 23,900	\$ 17,760	\$ 30,390	Short-term OJT	HS/SC
43-5061	Production, Planning, and Expediting Clerks	1%	\$ 44,480	\$ 31,090	\$ 53,130	Short-term OJT	HS/SC/C
43-5081	Stock Clerks and Order Fillers	1%	\$ 19,920	\$ 16,690	\$ 26,100	Short-term OJT	HS/SC
43-5071	Shipping, Receiving, and Traffic Clerks	1%	\$ 27,530	\$ 19,270	\$ 34,510	Short-term OJT	HS/SC
51-9198	Production Helpers	1%	\$ 20,500	\$ 16,570	\$ 25,820	Short-term OJT	HS
53-7051	Industrial Truck and Tractor Operators	1%	\$ 32,020	\$ 22,780	\$ 39,130	Short-term OJT	HS
	<b>Middle-Skill</b>						
51-9061	Inspectors and Testers	3%	\$ 31,260	\$ 20,230	\$ 40,680	Moderate-term OJT	HS/SC
51-4011	Computer-Controlled Machine Tool Operators	3%	\$ 31,660	\$ 22,560	\$ 37,450	Moderate-term OJT	HS/SC
49-9042	General Maintenance and Repair Workers	3%	\$ 36,160	\$ 24,390	\$ 44,010	Moderate-term OJT	HS/SC
51-4081	Multiple Machine Tool Setters, Operators/Tenders	2%	\$ 30,900	\$ 19,830	\$ 39,040	Moderate-term OJT	HS/SC
51-4033	Grind & Buff Machine Tool Setters, Operators/Tenders	2%	\$ 29,390	\$ 20,460	\$ 36,790	Moderate-term OJT	HS
51-4031	Cut, Punch & Press Mach. Setters, Operators/Tenders	1%	\$ 27,270	\$ 19,790	\$ 34,060	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
51-1011	First-Line Supervisors of Production Workers	4%	\$ 52,860	\$ 36,180	\$ 65,240	Work Exp. Related Occupation	HS/SC
13-1023	Purchasing Agents	1%	\$ 57,640	\$ 39,850	\$ 71,000	Work Exp. Related Occupation	HS/SC/C
11-3051	Industrial Production Managers	1%	\$ 91,060	\$ 62,810	\$ 112,840	Work Exp. Related Occupation	HS/SC/C
51-4041	Machinists	7%	\$ 36,930	\$ 24,330	\$ 45,020	Long-term OJT	HS/SC
51-4121	Welders, Cutters, Solderers, and Brazers	1%	\$ 34,670	\$ 24,960	\$ 43,400	Long-term OJT	HS/SC
49-9041	Industrial Machinery Mechanics	1%	\$ 44,790	\$ 32,470	\$ 54,160	Long-term OJT	HS/SC
47-2111	Electricians	1%	\$ 61,010	\$ 37,280	\$ 79,050	Long-term OJT	HS/SC
51-4111	Tool and Die Makers	1%	\$ 44,540	\$ 27,820	\$ 53,990	Long-term OJT	HS/SC
17-2141	Mechanical Engineers	3%	\$ 73,060	\$ 53,090	\$ 88,360	Bachelor degree	C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor degree	C
11-1021	General and Operations Managers	1%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C
11-9041	Engineering Managers	1%	\$ 122,820	\$ 87,840	\$ 152,840	Bach. or higher + Work Exp.	C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table E2 -- Wind Manufacturing Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
Laborers and Material Movers	Material Handler, Warehouse Worker, Laborer, Loader	
Production, Planning, and Expediting Clerks	Production Scheduler, Production Planner	
Stock Clerks and Order Fillers	Packer, Sales Representative, Stockroom Attendant	
Shipping, Receiving, and Traffic Clerks	Warehouseman, Receiving Mgr., Shipper, Shipping/Receiving Clerk	
Production Helpers	Machinist Helper, Manufacturing Helper	
Industrial Truck and Tractor Operators	Truck Driver, Forklift Operator	
<b>Middle-Skill</b>		
Inspectors and Testers	Turbine Attendant, Electric Motor Tester	
Computer-Controlled Machine Tool Operators	Computer Num. Control Mach., Automated Cutting Mach. Operator	
General Maintenance and Repair Workers	Electrical Mechanical Technician, Industrial Maintenance Mechanic	Building Maintenance Engineer
Multiple Machine Tool Setters, Oper., and Tenders	Computer Numerically Controlled Mach., Prod. Machine Tender	
Grind & Buff Machine Tool Setters/ Oper./Tenders	Blade Grinder, Axle Polisher	
Cut, Punch & Press Mach. Setters, Oper./Tenders	Punch Press Operator	
<b>High-Skill</b>		
First-Line Supervisors of Production Workers	Manufacturing Supervisor, Production Manager, Plant Manager	
Purchasing Agents	Contracts Manager, Purchasing Agent, Merchandiser	
Industrial Production Managers	Supervisor, Manager, Plant Superintendent	Solar Thermoelectric Plant Manager, Wind Field Operations Manager
Machinists	Machinist, Gear Machinist, Millwright	Wind Turbine Machinist
Welders, Cutters, Solderers, and Brazers	Blade Worker, Steel Cutter	Welder
Industrial Machinery Mechanics	Turbine Mechanic, Industrial Mechanic	Wind Field Technician, Wind Generating Installer, Wind Field Service Tech.
Electricians	Industrial Electrician, Electrical Wirer	Solar Energy System Installer, Solar Installation Elec., Elec. System Installer
Tool and Die Makers	Toolsmith, Electronic Die Maker	
Mechanical Engineers	Sheet Metal Engineer, Plant Equipment Engineer	Wind Turbine Mechanical Engineer
Accountants and Auditors	Accountant, Data Processing Auditor, Financial Auditor	
General and Operations Managers	District Plant Superintendent, Elec. Superintendent, Oper. Supervisor	
Engineering Managers	Chief Engineer, Electrical Engineering Director, Plant Engineer	Director of Wind Development

Table E3 -- Wind Manufacturing Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
53-7062	Laborers and Material Movers	96,430	3,090	5,281	1.7	Tight
43-5061	Production, Planning, and Expediting Clerks	16,320	440	1,381	3.1	Adequate
43-5081	Stock Clerks and Order Fillers	104,850	2,490	5,493	2.2	Tight
43-5071	Shipping, Receiving, and Traffic Clerks	41,490	990	883	0.9	Tight
51-9198	Production Helpers	17,870	440	3,463	7.9	Surplus
53-7051	Industrial Truck and Tractor Operators	19,450	490	393	0.8	Tight
	<b>Middle-Skill</b>					
51-9061	Inspectors and Testers	19,920	300	1,025	3.4	Adequate
51-4011	Computer-Controlled Machine Tool Operators	4,090	50	73	1.5	Tight
49-9042	General Maintenance and Repair Workers	94,990	780	203	0.3	Tight
51-4081	Multiple Machine Tool Setters, Operators, and Tenders	5,650	110	169	1.5	Tight
51-4033	Grinding & Buffing Machine Tool Setters/Oper./Tenders	3,980	40	181	4.5	Adequate
51-4031	Cutting, Punching & Press Mach. Setters, Oper./Tenders	7,560	180	132	0.7	Tight
	<b>High-Skill</b>					
51-1011	First-Line Supervisors of Production Workers	28,470	480	129	0.3	Tight
13-1023	Purchasing Agents	14,360	310	137	0.4	Tight
11-3051	Industrial Production Managers	6,200	210	275	1.3	Tight
51-4041	Machinists	14,480	220	81	0.4	Tight
51-4121	Welders, Cutters, Solderers, and Brazers	10,530	220	629	2.9	Tight
49-9041	Industrial Machinery Mechanics	9,770	160	2,983	18.6	Surplus
47-2111	Electricians	40,000	1,580	191	0.1	Tight
51-4111	Tool and Die Makers	4,020	50	172	3.4	Adequate
17-2141	Mechanical Engineers	9,480	210	404	1.9	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight
11-9041	Engineering Managers	7,910	160	1,157	7.2	Surplus

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

**APPENDIX F – WEATHERIZATION SECTOR: NEW YORK STATE**

Table F1 -- Weatherization: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
47-3012	Carpenters Helpers	1%	\$ 24,680	\$ 19,070	\$ 30,520	Short-term OJT	HS
47-3013	Electricians Helpers	3%	\$ 30,910	\$ 22,560	\$ 37,340	Short-term OJT	HS
49-9098	Installation, Maintenance, and Repair Helpers	1%	\$ 29,150	\$ 19,330	\$ 37,300	Short-term OJT	HS/SC
53-7062	Laborers and Material Movers	1%	\$ 23,900	\$ 17,760	\$ 30,390	Short-term OJT	HS/SC
	<b>Middle-Skill</b>						
47-2061	Construction Laborers	2%	\$ 42,690	\$ 25,980	\$ 56,110	Moderate-term OJT	HS
47-2131	Insulation Workers, Floor, Ceiling, and Wall	1%	\$ 36,900	\$ 24,610	\$ 55,880	Moderate-term OJT	HS/SC
47-2132	Insulation Workers, Mechanical	1%	\$ 64,940	\$ 50,540	\$ 75,900	Moderate-term OJT	HS/SC
49-9042	General Maintenance and Repair Workers	1%	\$ 36,160	\$ 24,390	\$ 44,010	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
13-1051	Cost Estimators	2%	\$ 60,730	\$ 39,010	\$ 78,990	Work Exp. Related Occupation	HS/SC/C
47-1011	First-Line Supervisors of Const. Trades Workers	4%	\$ 70,950	\$ 47,610	\$ 88,580	Work Exp. Related Occupation	HS/SC
49-1011	First-Line Supervisors of Mech., Installers, Repairers	1%	\$ 64,650	\$ 44,540	\$ 77,670	Work Exp. Related Occupation	HS/SC
47-2031	Carpenters	4%	\$ 47,350	\$ 30,270	\$ 63,340	Long-term OJT	HS/SC
47-2111	Electricians	16%	\$ 61,010	\$ 37,280	\$ 79,050	Long-term OJT	HS/SC
47-2152	Plumbers, Pipefitters, and Steamfitters	11%	\$ 57,180	\$ 35,360	\$ 72,440	Long-term OJT	HS/SC
47-2211	Sheet Metal Workers	3%	\$ 57,550	\$ 30,750	\$ 72,040	Long-term OJT	HS/SC
49-9021	Heating, Air Cond. & Refrig. Mechanics/ Installers	6%	\$ 45,490	\$ 29,420	\$ 55,880	Long-term OJT	HS/SC
51-4121	Welders, Cutters, Solderers, and Brazers	1%	\$ 34,670	\$ 24,960	\$ 43,400	Long-term OJT	HS/SC
11-9021	Construction Managers	1%	\$ 113,290	\$ 67,870	\$ 156,030	Bachelor degree	HS/SC/C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor degree	C
11-1021	General and Operations Managers	2%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table F2 -- Weatherization Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
Carpenters Helpers	Carpenter Apprentice, Construction Worker	
Electricians Helpers	Apprentice Electrician, Electrician Assistant	
Installation, Maintenance, and Repair Helpers	Heating and Air-Cond. Installer-Servicer Helper, Apprentice/Lineman	
Laborers and Material Movers	Material Handler, Warehouse Worker, Laborer, Loader	
<b>Middle-Skill</b>		
Construction Laborers	Construction Worker	
Insulation Workers, Floor, Ceiling, and Wall	Retrofit Installer, Fiberglass Insulation Installer	Residential Air Sealing Technician
Insulation Workers, Mechanical	Heat and Frost Insulator, Sheet Metal Insulator	Residential Air Sealing Technician
General Maintenance and Repair Workers	HVAC Technician, Mechanical, Plumbing, and Electrical Installer	Building Maintenance Engineer
<b>High-Skill</b>		
Cost Estimators	Construction Job Cost Estimator	
First-Line Supervisors of Const. Trades Workers	Construction Foreman, Insulation Supervisor, Building Superintendent	Solar Installation Electrician Foreman, Weatherization Operations Manager
First-Line Supervisors of Mech., Installers, Repairers	HVAC Supervisor, Apartment Maintenance Supervisor	Weatherization Operations Manager
Carpenters	Building Carpenter, Residential Carpenter	Carpenters
Electricians	Licensed Electrician, Construction Electrician	Solar Energy System Installer, Solar Installation Elec., Elec. System Installer
Plumbers, Pipefitters, and Steamfitters	Hot Water Heater Installer, Master Plumber, Gas Line Servicer	Solar Energy System Installer, Green Plumber and Pipefitter
Sheet Metal Workers	HVAC Sheet Metal Specialist, Ceiling Installer	Solar Energy System Installer, Wind Turbine Sheet Metal Worker
Heating, Air Cond. & Refrig. Mechanics/ Installers	HVAC Tech., Furn. Mech., Heating and Air-Cond. Installer-Servicer	Solar Energy System Installer, Field Technician, HVAC Service Technician
Welders, Cutters, Solderers, and Brazers	Arc Welder, Gas Welder	Welder
Construction Managers	Const. Foreman, Plumbing and Heating Contractor, Roofing Contractor	
Accountants and Auditors	Accountant, Data Processing Auditor, Financial Auditor	
General and Operations Managers	Line Construction Superintendent, Site Operations Manager	

Table F3 -- Weatherization Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
47-3012	Carpenters Helpers	8,090	380	236	0.6	Tight
47-3013	Electricians Helpers	3,720	140	67	0.5	Tight
49-9098	Installation, Maintenance, and Repair Helpers	9,470	290	1,431	4.9	Adequate
53-7062	Laborers and Material Movers	96,430	3,090	5,281	1.7	Tight
	<b>Middle-Skill</b>					
47-2061	Construction Laborers	54,770	1,190	193	0.2	Tight
47-2131	Insulation Workers, Floor, Ceiling, and Wall	1,020	40	326	8.2	Surplus
47-2132	Insulation Workers, Mechanical	680	30	611	20.4	Surplus
49-9042	General Maintenance and Repair Workers	94,990	780	203	0.3	Tight
	<b>High-Skill</b>					
13-1051	Cost Estimators	10,090	390	66	0.2	Tight
47-1011	First-Line Supervisors of Const. Trades Workers	33,510	900	512	0.6	Tight
49-1011	First-Line Supervisors of Mech., Installers, Repairers	23,450	560	88	0.2	Tight
47-2031	Carpenters	69,260	2,000	2,840	1.4	Tight
47-2111	Electricians	40,000	1,580	191	0.1	Tight
47-2152	Plumbers, Pipefitters, and Steamfitters	28,040	1,070	1,241	1.2	Tight
47-2211	Sheet Metal Workers	6,490	240	370	1.5	Tight
49-9021	Heating, Air Conditioning, and Refrig. Mech./Installers	18,390	450	249	0.6	Tight
51-4121	Welders, Cutters, Solderers, and Brazers	10,530	220	629	2.9	Tight
11-9021	Construction Managers	27,080	760	205	0.3	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

**APPENDIX G – ENERGY SERVICE COMPANY SECTOR: NEW YORK STATE**

Table G1 -- Energy Service Companies: Common Occupations and Associated Skills, New York State

SOC Code	SOC Title	Staffing Pattern	NYS Occupational Wages <sup>1</sup>			Typical Education and Training Requirements <sup>4</sup>	Education Cluster <sup>4</sup>
			Median	Entry <sup>2</sup>	Experienced <sup>3</sup>		
	<b>Entry-Level</b>						
43-9061	General Office Clerks	3%	\$ 26,280	\$ 18,130	\$ 32,190	Short-term OJT	HS/SC
	<b>Middle-Skill</b>						
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2%	\$ 35,540	\$ 25,130	\$ 42,320	Moderate-term OJT	HS/SC
	<b>High-Skill</b>						
47-4011	Construction and Building Inspectors	1%	\$ 51,500	\$ 36,750	\$ 61,620	Work Exp. Related Occupation	HS/SC/C
17-3023	Electrical and Electronic Engineering Tech.	1%	\$ 55,540	\$ 34,180	\$ 64,070	Associate degree	HS/SC
17-3027	Mechanical Engineering Technicians	1%	\$ 48,920	\$ 35,520	\$ 58,910	Associate degree	HS/SC
11-9021	Construction Managers	1%	\$ 113,290	\$ 67,870	\$ 156,030	Bachelor's degree	HS/SC/C
13-2011	Accountants and Auditors	1%	\$ 69,900	\$ 50,050	\$ 92,540	Bachelor's degree	C
13-2051	Financial Analysts	1%	\$ 87,240	\$ 56,430	\$ 127,300	Bachelor's degree	C
15-1021	Computer Programmers	1%	\$ 70,950	\$ 47,790	\$ 89,890	Bachelor's degree	SC/C
17-1011	Architects	3%	\$ 76,890	\$ 50,470	\$ 101,380	Bachelor's degree	C
17-2071	Electrical Engineers	2%	\$ 82,610	\$ 55,620	\$ 101,360	Bachelor's degree	C
17-2072	Electronics Engineers	1%	\$ 85,290	\$ 58,150	\$ 101,530	Bachelor's degree	C
17-2081	Environmental Engineers	1%	\$ 76,570	\$ 50,310	\$ 91,750	Bachelor's degree	C
17-2141	Mechanical Engineers	2%	\$ 73,060	\$ 53,090	\$ 88,360	Bachelor's degree	C
19-3021	Market Research Analysts	1%	\$ 66,050	\$ 41,670	\$ 89,730	Bachelor's degree	C
11-3031	Financial Managers	1%	\$ 132,760	\$ 76,970	\$ 166,400	Bach. or higher + Work Exp.	SC/C
11-9041	Engineering Managers	2%	\$ 122,820	\$ 87,840	\$ 152,840	Bach. or higher + Work Exp.	C
11-1021	General and Operations Managers	2%	\$ 115,530	\$ 63,320	\$ 163,810	Bach. or higher + Work Exp.	HS/SC/C
13-1111	Management Analysts	5%	\$ 77,800	\$ 49,290	\$ 111,240	Bach. or higher + Work Exp.	C
15-2031	Operations Research Analysts	1%	\$ 74,500	\$ 48,380	\$ 101,440	Master's degree	SC/C

Source: New York State Department of Labor.

<sup>1</sup> New York State *Occupational Wages*: 2<sup>nd</sup> Quarter 2008

<sup>2</sup> *Entry wage*: The mean (average) of the bottom third of wages in an occupation.

<sup>3</sup> *Experienced wage*: The mean (average) of the top two-thirds of wages in an occupation.

<sup>4</sup> *Typical Education and Training Requirements* and *Education Cluster* descriptions found here - <http://www.bls.gov/emp/optd/optd001.pdf>

Table G2 -- Energy Service Companies Common Occupations: SOC Titles; Lay Titles and Emerging Titles

SOC Title	Lay Titles	Emerging Titles
<b>Entry-Level</b>		
General Office Clerks	Clerical Assistant, Clerk, Secretary, Data Entry Clerk	
<b>Middle-Skill</b>		
Bookkeeping, Accounting, and Auditing Clerks	Administrative Assistant, Executive Assistant	
<b>High-Skill</b>		
Construction and Building Inspectors	HVACR Inspector, Building Code Administrator	
Electrical and Electronic Engineering Tech.	Lighting Specialist	ICE Technician – (Instrumentation/Controls/Electrical Systems), Solar Commercial Installation Engineering Technician
Mechanical Engineering Technicians	Cert. Control Systems Tech., Heat Transfer Tech.	
Construction Managers	Construction Foreman, Site Manager	
Accountants and Auditors	Accountant, Data Processing Auditor, Fin'l. Auditor	
Financial Analysts	Budget Analyst, Corporate Financial Analyst	
Computer Programmers	Computer Programer	
Architects	Architectural Designer, Facilities Planner	
Electrical Engineers	Electrical Systems Engineer, Service Engineer	Solar Comm. Install. Engineer, Solar Oper. Engineer, Solar Energy Engineer, Wind Farm Electrical Systems Designer, Wind Turbine Electrical Engineer
Electronics Engineers	Electronic System Engineer, Controls Engineer	Solar Commercial Installation Engineer
Environmental Engineers	Env. Engineer, Environmental Systems Coord.	
Mechanical Engineers	HVAC Engineer, Air Conditioning Engineer	Wind Turbine Mechanical Engineer
Market Research Analysts	Demographic Analyst, Market Researcher	
Financial Managers	Bookkeeper, Financial Officer	
Engineering Managers	Chief Engineer, Director of Engineering	
General and Operations Managers	Director, Chief Executive Officer	
Management Analysts	Human Resource Analyst, Administrative Analyst	
Operations Research Analysts	Business Operations Analyst, Procedure Analyst	

Table G3 -- Energy Service Companies Common Occupations: Labor Supply and Demand New York State

SOC Code	SOC Title	Employment 2006	Openings Proj. Annual	Applicants NY One Stop System (Feb. 2009)	Ratio Applicants to Openings	Labor Supply Assessment*
	<b>Entry-Level</b>					
43-9061	General Office Clerks	206,100	4,950	1,317	0.3	Tight
	<b>Middle-Skill</b>					
43-3031	Bookkeeping, Accounting, and Auditing Clerks	142,830	3,300	298	0.1	Tight
	<b>High-Skill</b>					
47-4011	Construction and Building Inspectors	6,430	190	143	0.8	Tight
17-3023	Electrical and Electronic Engineering Technicians	8,670	170	187	1.1	Tight
17-3027	Mechanical Engineering Technicians	1,490	30	459	15.3	Surplus
11-9021	Construction Managers	27,080	760	205	0.3	Tight
13-2011	Accountants and Auditors	106,960	3,230	505	0.2	Tight
13-2051	Financial Analysts	33,170	780	422	0.5	Tight
15-1021	Computer Programmers	36,180	760	587	0.8	Tight
17-1011	Architects	11,420	370	60	0.2	Tight
17-2071	Electrical Engineers	8,850	210	81	0.4	Tight
17-2072	Electronics Engineers	5,860	140	58	0.4	Tight
17-2081	Environmental Engineers	4,160	200	38	0.2	Tight
17-2141	Mechanical Engineers	9,480	210	404	1.9	Tight
19-3021	Market Research Analysts	25,830	550	69	0.1	Tight
11-3031	Financial Managers	52,410	1,260	1,618	1.3	Tight
11-9041	Engineering Managers	7,910	160	1,157	7.2	Surplus
11-1021	General and Operations Managers	95,880	2,310	626	0.3	Tight
13-1111	Management Analysts	36,480	1,180	330	0.3	Tight
15-2031	Operations Research Analysts	1,970	50	97	1.9	Tight

\* Ratio value -- Tight < 3.0; Adequate = 3.0 to 6.0; Surplus > 6.0.

**APPENDIX H – CLEAN ENERGY TRAINING INVENTORY: NEW YORK STATE**

**Table H-1: New York State Clean Energy Training Providers by Training Type**

Provider Name/Training Type	Street Address	City	State	Zip Code	Phone Number
<b>Biomass</b>					
Morrisville State College	107 Brikneel Hall	Morrisville	NY	13408	
SUNY College of Environmental Science and Forestry	1 Forestry Drive	Syracuse	NY	13210	(315) 470-6817
<b>Energy Efficiency (BPI-recognized)</b>					
CUNY: Center for Sustainable Energy at Bronx Community College	West 181st Street & University Ave.	Bronx	NY	10453	
Association for Energy Affordability	505 8th Ave, Suite 1801	New York	NY	10018	(212) 279-3902
Broome County Community College	907 Upper Front Street	Binghamton	NY	13905	
Conservation Services Group, Inc. (Albany Office)	447 New Karner Road	Albany	NY	12205	(518) 207-4500
Conservation Services Group, Inc. (Ronkonkoma Office)	Meridian Plaza 3075 Veterans Memorial Highway Suite 181	Ronkonkoma	NY	11779	(631) 820-3017
Erie County Community College	City Campus, 121 Ellicoot Street	Buffalo	NY	14203	
Hudson Valley Community College	80 Vandenburg Ave	Troy	NY	12180	(518) 429-6111
NYS Weatherization Directors Association	5869 Fisher Road	Syracuse	NY	13057	(315) 701-0440
<b>OCM - BOCES</b>					
Performance Systems Academy	Lee G. Peters Training Center 4500 Crown Road	Liverpool	NY	13090	
The Building Service 32BJ Thomas Shortman Training	124 Brindley Street, Suite 4	Ithaca	NY	14850	
Steven Winter Associates, Inc.	101 Avenue of Americas	New York	NY	10013	
Westchester Community College	307 Seventh Avenue, Ste. 701	New York	NY	10001	
	75 Grasslands Road	Valhalla	NY	10595	(914) 606-6789
<b>Energy Efficiency</b>					
Cattaraugus-Alleghany-Erie-Wyoming BOCES	1825 Windfall Road	Olean	NY	14760	
Community Environmental Center	43-10 11th Street	Long Island City	NY	11101	(718) 784-1444
CUNY: Baruch College, The Steven L Newman Real Estate	137 East 22nd Street	New York	NY	10010	
CUNY: Borough of Manhattan Community College	199 Chambers Street	New York	NY	10007	
CUNY: Building Performance Lab	One Bernard Baruch Way 55 Lexington Avenue	New York	NY	10010	(646) 660-6977
CUNY: New York City College of Technology	300 Jay Street	Brooklyn	NY	11201	
CUNY: NY Designs at LaGuardia Community College	31-10 Thompson Avenue	Long Island City	NY	11101	
Doe Fund	232 East 84th Street	New York	NY	10028	(212) 628-5207
Farmingdale State College	2350 Broadhallow Rd	Farmingdale	NY	11735	(631) 420-2024

**Table H-1: New York State Clean Energy Training Providers by Training Type**

Provider Name/Training Type	Street Address	City	State	Zip Code	Phone Number
Fulton-Montgomery Community College	2805 State Highway 67	Johnstown	NY	12095	(518) 762-4651
Greenstreet Construction	68 Est 131 Street, Ste. 600	New York	NY	10037	
International Union of Operating Engineers Local 9	331-337 West 44th Street	New York	NY	10036	
Mohawk Valley Community College	1101 Sherman Drive	Utica	NY	13501	(315) 792-5321
Monroe Community College	Brighton Campus 1000 East Henrietta Road	Rochester	NY	14623	
Morrisville State College	107 Brikneel Hall	Morrisville	NY	13408	
Mount Hope Housing Company	2003-05 Walton Avenue	Bronx	NY	10453	
New York State Weatherization Directors' Association	2 Charles Blvd.	Guilderland	NY	12084	
Nontraditional Employment for Women	243 West 20th Street	New York	NY	10011	(212) 627-6252
North Country Community College	23 Santanoni Ave, PO Box 89	Saranac Lake	NY	12983	(518) 891-2915
Onondaga Community College	4585 West Seneca Turnpike	Syracuse	NY	13215	(315) 498-2171
Solar One	2420 FDR Drive Service Road East	New York	NY	10010	
Southern Westchester BOCES	2 Westchester Plaza	Elmsford	NY	10593	(914) 345-8500
STRIVE International	240 E 123rd St	New York	NY	10035	(212) 360-1100
Suffolk County Community College	533 College Rd.	Selden	NY	11784	(631) 451-4607
Sullivan County Community College	112 College Road	Loch Sheldrake	NY	12759	
SUNY Canton	CSOET, NN105	Canton	NY	13617	
SUNY Ulster Co. Community College	Business Resource Center One Development Center	Kingston	NY	12401	(845) 802-7167
Sustainable South Bronx	890 Garrison Ave # 24	New York	NY	10474	(718) 617-4668
Turner Construction	375 Hudson Street	New York	NY	10014	
Wayne Technical and Career Center	4440 Ridge Road	Williamson	NY	14589	(315) 589-2600
<b>Solar Photovoltaic</b>					
Broome County Community College	907 Upper Front Street	Binghamton	NY	13905	
Clinton Community College	136 Clinton Point Drive	Plattsburgh	NY	12901	(518) 562-4145
CUNY: Borough of Manhattan Community College	199 Chambers Street	New York	NY	10007	
CUNY: Kingsborough Community College	2001 Oriental Blvd.	Brooklyn	NY	11235	(718) 368-6702
CUNY: New York City College of Technology	300 Jay Street	Brooklyn	NY	11201	
Long Island Power Authority	333 Earle Ovington Blvd	Uniondale	NY	11553	
Mohawk Valley Community College	1101 Sherman Drive	Utica	NY	13501	(315) 792-5321
Morrisville State College	107 Brikneel Hall	Morrisville	NY	13408	
Solar One	2420 FDR Drive Service Road East	New York	NY	10010	

**Table H-1: New York State Clean Energy Training Providers by Training Type**

Provider Name/Training Type	Street Address	City	State	Zip Code	Phone Number
Sullivan County Community College	112 College Road	Loch Sheldrake	NY	12759	
SUNY Delhi	2 Main Street	Delhi	NY	13753	
Wayne Technical and Career Center	4440 Ridge Road	Williamson	NY	14589	(315) 589-2600
<b>Solar Photovoltaic (NABCEP-recognized)</b>					
Cattaraugus-Alleghany-Erie-Wyoming BOCES	1825 Windfall Road	Olean	NY	14760	
CUNY: Center for Sustainable Energy at Bronx Community College	West 181st Street & University Ave.	Bronx	NY	10453	
Farmingdale State College	2350 Broadhallow Rd	Farmingdale	NY	11735	(631) 420-2024
Hudson Valley Community College	80 Vandenburg Ave	Troy	NY	12180	(518) 429-6111
SUNY Canton	CSOET, NN105	Canton	NY	13617	
SUNY College of Environmental Science and Forestry	1 Forestry Drive	Syracuse	NY	13210	(315) 470-6817
SUNY Ulster Co. Community College	Business Resource Center One Development Center	Kingston	NY	12401	(845) 802-7167
Tri-City Joint Apprenticeship Training & Committee	428 Old Niskayuna Road	Latham	NY	12110	
Ulster BOCES	PO Box 601, Route 9W	Port Ewen	NY	12466	
<b>Solar Thermal</b>					
CUNY: New York City College of Technology	300 Jay Street	Brooklyn	NY	11201	
Morrisville State College	107 Brikneel Hall	Morrisville	NY	13408	
SUNY Ulster Co. Community College	Business Resource Center One Development Center	Kingston	NY	12401	(845) 802-7167
<b>Solar Thermal (ISPO-accredited)</b>					
CUNY: Center for Sustainable Energy at Bronx Community College	West 181st Street & University Ave.	Bronx	NY	10453	
Farmingdale State College	2350 Broadhallow Rd	Farmingdale	NY	11735	(631) 420-2024
<b>Wind</b>					
Clinton Community College	136 Clinton Point Drive	Plattsburgh	NY	12901	(518) 562-4145
Morrisville State College	107 Brikneel Hall	Morrisville	NY	13408	
Sullivan County Community College	112 College Road	Loch Sheldrake	NY	12759	
SUNY Ulster Co. Community College	Business Resource Center One Development Center	Kingston	NY	12401	(845) 802-7167
Wayne Technical and Career Center	4440 Ridge Road	Williamson	NY	14589	(315) 589-2600