



Comprehensive Workforce Development for Social and Environmental Justice

Solar One's Green Workforce Training Program and Green Design Lab Program

Solar One delivers environmental education programming to New Yorkers of all ages through five distinct programs aimed at different audiences. The organization was founded in 2004 to manage Stuyvesant Cove Park- an all native plant park located on the banks of the East River in Manhattan, but has since grown into a multifaceted renewable and energy efficiency education operation. In addition to their workforce development programs, Solar One has installed over 2 megawatts of photovoltaics on low income housing in New York City, become a central coordinator of citywide and regional climate and energy discussions, set in motion the construction of a state of the art environmental education center, and continued to manage and improve the park that was their birthplace. Solar One is supporting NYC's climate action plan by implementing high impact actions that accelerate near-term greenhouse gas (GHG) reductions.

Overview

“Increasing the sustainability of New York City’s systems is of critical and growing importance. Solar One’s Solar Schools and Career and Technical Education Programs bring our solar program to life for school communities in an engaging way, connecting the benefit of resilient infrastructure with the value of career preparation. Green jobs have earned a place on the radar of our youth, and we are thrilled that Solar One strongly supports student learning and leadership in this workforce development!”

Meredith McDermott, Director of Sustainability, NYC Department of Education

Solar One has two workforce development programs aimed at different audiences: the Green Workforce Training program and the K-12 Green Design Lab Program. These programs help to ensure that all New Yorkers can contribute to a more just and sustainable city by providing traditionally underserved populations access to workforce training.

Green Workforce Training Program

Solar One's green workforce development program is located at Solar One's training facility in Queens. Enrollment provides hard skills technical training and certifications in green construction, green building operation and maintenance, or solar panel installation. The program offers entry level training specifically for unemployed or underemployed individuals



to successfully enter the workforce, as well as certification-based courses for incumbent workers. Solar One partners with multiple high-profile nonprofit organizations across NYC to provide these hard skills training programs to cohorts of under and unemployed students in an effort to provide them with new skills to enter or re-enter the workforce.

Solar One's workforce program also partners with the New York State Energy Research and Development Authority (NYSERDA) and local property management companies in NYC to train building staff in energy efficiency measures. Workshops focus on efficiently maintaining heating and cooling systems in every type of building stock to minimize wasted energy. A key component is a top to bottom implementation so that multiple levels of staff are trained to help support building-wide success. Afterwards, building managers develop a corporate strategy and sustainability plan to integrate new training initiatives within standard business procedure. This ensures continuation of training to address specific skills gaps and changing market needs.

Since 2016, Solar One has worked with the Fortune Society's I-CAN program to deliver hard skills training onsite at Rikers Island Prison Complex to inmates in two and four week long cohorts. Students receive an experience similar to that of the classroom in Queens and participate in hands-on training projects onsite in the prison facilities. By incorporating the hands-on component in these trainings, students are extremely engaged and able to build their skill set directly in the classroom. Courses that have been taught at Rikers Island include green

carpentry, electrical, plumbing, green building operations and maintenance, and solar PV installation. Following release back into the community, students are encouraged to attend additional training opportunities at Solar One and further advance their skills.

Solar One's Green Workforce educators also lead on-site building walkthroughs as part of NYC's Retrofit Accelerator program to help building managers adopt simple and low-cost retrofits. This collaborative initiative allows the city to reach goals in the climate action plan by utilizing the expertise of the green workforce educators.

Green Design Lab

Solar One runs a K-12 education program, called the Green Design Lab (GDL). GDL is an environmental and sustainability education program that offers activities and lessons, professional development for teachers, and field trips to Solar One's green education center. The Green Design Lab curriculum focuses on environmental sustainability and climate change through 5 units- energy, food, water, air quality and materials science. GDL activities are tied to state and national learning standards so that teachers can utilize these activities to support classroom learning objectives.



A major component of GDL's programming is to train students and teachers to use the classroom and school building as a tool for environmental change. For example, students and teachers are trained to conduct energy audits of their classrooms and homes and then implement energy conservation measures. Solar One partners with the NYC Department of Education to train Sustainability Coordinators to use their activities and resources to green their schools.

High School Vocational Programs

GDL also partners with the NYC DOE's Office of Career and Technical Education to provide training to high school students who attend vocational programs in electrical engineering, HVAC and construction. One of the flagship programs is the "Solar CTE Program" which trains high school electrical students in basic solar installation. Through this program, students learn foundational solar pedagogy and explore the breadth of the solar industry through field trips, guest speakers and independent research. Students then participate in



a hands-on installation of a stand-alone solar system. Students complete the program by taking a solar installation exam. Students who perform well on the exam are given information on how they can receive more training to become NABCEP certified, once they are 18 years of age.

GDL also collaborates with the Green Workforce Program to provide hard-skills training for high school students that are interested industry certifications such as GPRO Fundamentals plus electrical and BPI Building Science Principles. These trainings consist of 20 hours of training plus the examination.

CareerCLUE

In 2016, GDL launched CareerCLUE (Community Learning, Understanding & Experience), a partnership with the NYC department of Education (DOE), Office of Community Schools and the NYC Center for Youth Employment (CYE) and the Department of Youth and Community Development Summer Youth Employment Program to engage students from high-risk high schools in programming that blends environmental science, green career exploration and personal development. Now in its third year, this 6-week summer program for 14 and 15 year olds exposes students to green career opportunities through hands-on GDL activities, guest speakers, field trips and service learning projects. Students are paid for their participation in the program and they receive a science credit. For their capstone project, students must tie their learning to the goals outlined in the Mayor’s sustainability plan.

New York City Impact

Green Workforce Training Program

“We must all do our part to make New York a more sustainable city. The Solar One Workforce training program provides needed green job training skills to New Yorkers, and I’m proud to support this important initiative”

City Council Speaker Melissa Mark Viverito after visiting Solar One’s Solar Installer Class In Long Island City

Over the past 8 years, the Green Workforce Training Program has graduated almost 3,000 individuals. Of the 596 students who completed Solar One’s workforce development program in 2017, 323 were entry-level unemployed individuals, 195 were existing building staff, and 78 were incarcerated individuals at Rikers Island.

2017 Green Workforce Program Job Placement Data

Number of students that completed a training program	233
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Number of students placed in jobs	164
Number of students placed in green jobs	133
Out of all job placements, percentage of green jobs	81%
Percentage of students still employed as of June 2017	69%

Green Design Lab

“Making batteries, testing building materials, making the thermal water heater– all of the activities were great. This was, by far, the best PD I’ve ever attended. This had activities that are so relevant and applicable, and also things kids will enjoy doing. I will integrate some of these into my classes next year.”

NYC School Teacher, Attended Solar One PD Workshop

During the 2017-2018 academic year, GDL worked directly with over 6,000 K-12 students, a 233% increase over the previous year. GDL also worked with 375 teachers in 2017-2018.

Regional Impact

The Green Design Lab is expanding its programming outside of New York City. GDL is in its third year of partnership with the New York Power Authority (NYPA) to offer professional development training for teachers and classroom residencies for students across New York State. GDL has also delivered trainings in New Jersey and is currently exploring a potential partnership with the city of Newark to bring some of the workforce and GDL programming in Newark. We are hoping to continue to expand programming to other cities in the Northeast including Baltimore and Boston.

Lessons Learned

Workforce development can happen at any age, and Solar One is approaching it from many angles. The green workforce of the future will be strengthened by students right out of high school, formerly unemployed individuals, veterans, and formerly incarcerated individuals doing a variety of jobs.

These are some of the main takeaways from Solar One’s job training programs:

The future green workforce is diverse

Green workforce development programs can include a wide variety of trades. Training building managers and carpenters to work sustainably is as important as training solar technicians.

City agencies can support workforce development

One area for future development is to work with city agencies to encourage city contractors in solar and construction to interview candidates that come directly out of workforce programs for potential employment. This would help to boost job acquisition amongst underemployed individuals and help participants to gain valuable experience interviewing for jobs.

Workforce development starts in high school

Introducing students to green jobs and the principles behind them better prepares them to choose a career, and providing paths to certification and employment for individuals not inclined towards college can be a valuable way to grow the green workforce.

Educational networks can connect an entire industry

Community based organizations play a critical role in helping cities achieve their climate action goals. All facets of the energy industry benefit from information sharing between existing initiatives, and find greater success when connected to an educational organization's outward facing programs to a city wide community. This collective education creates a greater cohesiveness that allows for partnerships with current government initiatives, increasing visibility for both parties.

Point of Contact

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Solar One

Partners

Solar One partners with government agencies and organizations across New York City and New York State. Here are just some of our partners:

[The Fortune Society](#)

[NYC Retrofit Accelerator](#)

[New York City Department of Education Office of Sustainability](#)

[NYC Department of Citywide Administrative Services](#)

[New York Power Authority Environmental Justice Department](#)

[WEACT for Environmental Justice](#)

[Urban Homesteading Assistance Board](#)

[NYC Environmental Justice Alliance](#)

[The POINT Community Development Corporation](#)

[UPROSE](#)

[NYC Department of Housing Preservation and Development](#)

[The Joint Ownership Entity NYC](#)

[The Fortune Society](#)

[STRIVE International](#)

[Green City Force](#)

[Brooklyn Workforce Innovations](#)

[BuildingWorks](#)

[LaGuardia Community College](#)

[St. Nicks Alliance](#)

Resources/Website

[Solar One](#)

[2017 Annual Program Report](#)

[Green Design Lab Classroom Residencies](#)