



# Cultivating a Clean Energy Economy

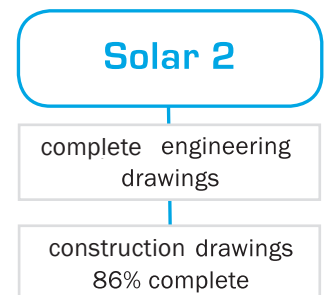
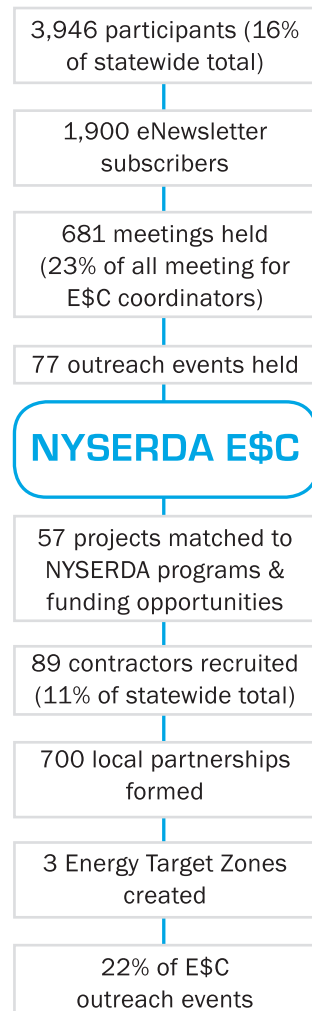
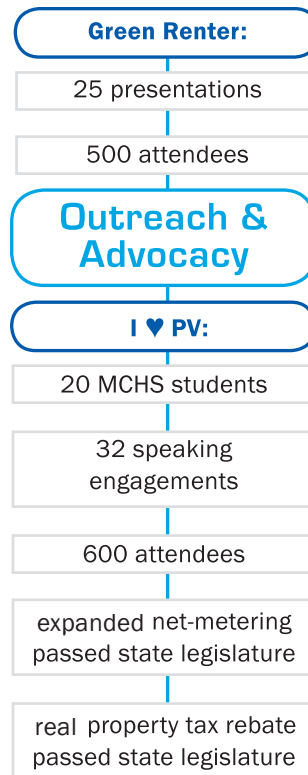
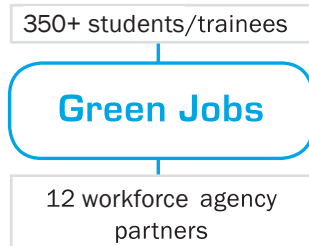
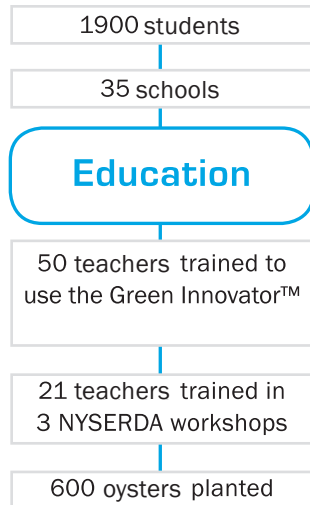
Solar One: 2009 Program Report

# Thank You to Our 2009 Major Contributors

## Making our work possible

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# Solar One Dashboard







**Solar 2 Building** NYC's first Net-zero building. Rendering by Kiss + Cathcart, Architects.

# Cultivating a Clean Energy Economy

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# 2009 Solar One Headlines

## Solar One Moves to New Office Space

After almost a year of intense growth, the Solar One administrative, operations and development staff relocated to a beautiful, spacious, light-filled office space on West 26th Street. Right now, the park and education staff remain at Solar 1, while the office allows us room to expand our operations as our programs grow and we prepare to open Solar 2.

## TruLight and Solar 2 Featured on Sundance Channel

As part of the Sundance Channel's *Traction For Life* series, TruLight Coordinator Kene Turner explained our Youth Eco-Entrepreneurship program, while Executive Director Chris Collins starred in a segment about the new Solar 2 Environmental Learning & Arts Center we plan to construct in 2010.

## Green Career Job Training Program Ramps Up

After years of training students through the TruLight, Park Internship and I ♥ PV programs, Solar One added two full-time staff positions to develop a Green Career Job Training Program for at-risk and underserved youth and adults, working with almost 300 trainees in 2009. These programs are poised for even more growth in 2010 with the addition of new partners, new funders and a new classroom/lab space in Long Island City.

## Solar One, Rooftop Films, Green Edge Collaborative and IFP Present the World Premiere of *Burning In the Sun*

One of the most exciting events of the summer, Solar One hosted the world premiere screening of the film *Burning In the Sun*. Presented in conjunction with Rooftop Films, the film follows the development of solar power in rural areas of Mali, West Africa. The screening brought over 400 people to the Solar One blacktop in September.

## Solar One Receives a NYC Department of Education Vendor Contract

Solar One was accepted by the DOE as a vendor, meaning we can now market our programs to schools for a fee. This will increase the funding and scope of our programs and allow many more schoolchildren to experience and benefit from them.

## Schmidt Family Foundation's 11th Hour Fund Awards \$150K to Solar 2

We received a \$150,000 grant from the Schmidt Family Foundation's 11th Hour Fund to complete the final design work for Solar 2. This generous contribution also enabled us to complete a \$100,000 matching grant from the LuEsther T. Mertz Trust, increasing the total value of the gift to \$400,000.

# Board of Directors

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*Community Environmental Center*

**Ellen Witzling Roff, Treasurer**

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*New York Landmarks Conservancy*

**Jane Crotty**  
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**Sara Queen**  
*Brookfield Properties*

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*Executive Director*

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*Marketing Associate*

**Allison Bobman**  
*Educator*

**Maya Brym**  
*Grant Writer*

**Louise Diamond**  
*Program Services Manager*

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**Chris Fowler**  
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*Energy \$mart Communities Coordinator*

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*Green Career Jobs Training Program Director*

**Melanie LaRosa**  
*Grant Writer*

**Stephen Lehtonen**  
*TruLight Education Specialist*

**Melissa McDonald**  
*Park Manager*

**Abeo Miller**  
*Intern*

**Corinne Monaco**  
*Intern*

**Chris Neidl**  
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**Diana Pangestu**  
*Energy \$mart Communities Coordinator*

**Jamie Paquette**  
*Operations Manager*

**Sarah Pidgeon**  
*Education Coordinator*

**Tamar Rogoff**  
*Arts Director*

**James Ryan**  
*Grant Writer*

**Celia Salgado**  
*E\$C Program Assistant*

**Diallo Shabazz**  
*Green Career Job Training Development Director*

**Alex Smith**  
*Educator*

**Angela Tran**  
*Graphic Design*

**Mary Tchamkina**  
*E\$C Program Assistant*

**Kene Turner**  
*TruLight Program Coordinator*

January 29, 2010



2009 was another whirlwind year for Solar One, perhaps more so than in years past. The increased focus on environmental and workforce issues from the 2008 election cycle cascaded into a surge of interest in our programs during the year. This was a natural outgrowth of the fact that Solar One has many established programs that focus on the intersection of education and workforce development, as well as our focus on curriculum development and strategic thinking. These attributes give us the ability to adapt quickly to meet this growing demand.

Much of the credit for our growth this year falls squarely on the shoulders of our fantastic, hard-working staff, our generous supporters and our wonderful partners like New York Restoration Project, Green Edge Collaborative, Rooftop Films, Asian Americans for Equality (AAFE), STRIVE East Harlem and the Urban Assembly School for Green Careers among many others. Together, they have helped make Solar One an organization that is recognized as an educational, cultural and legislative force. In the pages that follow, you will be able to see our programs in detail and learn more about how far we've come and where we are going in the years ahead. Along the bottom of these pages you will also see a timeline that highlights and recognizes some of the key milestones and accomplishments we have managed in our 5+ years of existence. It's astonishing to think of what we have accomplished in that time, and humbling to think of all the work that still lies in front of us.

2009 had many moments worthy of mention: improvements to Stuyvesant Cove Park; the 5th year of our Solar-Powered Arts Festival; the continued popularity of our education programs and the addition of a contract with the NYC Department of Education; a full year of working with NYSEERDA to promote Energy \$mart Communities; the expansion of programs like TruLight and the Green Design Lab; and the addition of new programs like "Green From the Inside Out" and "Make Solar Sonic." We also held our biggest Revelry By The River to date, hosted Matthew Modine and Bicycle For A Day, celebrated Loving Day for the third straight year, and helped present the premieres of a performance piece ("Our Lady of Detritus") and a film ("Burning In The Sun"). And on top of it all, we found the time to move into new offices that provide the space a growing organization needs.

Particularly noteworthy is the expansion of our Green Jobs training programs. We had been slowly building this program for several years beginning with our TruLight and Park Internship programs and expanding into PV installation and building performance. As with any training program, the challenge is to develop a prepared workforce at the same time that jobs are becoming available. To that end we have been lucky to work with several established workforce organizations like STRIVE, Covenant House, Co-op Tech and the Consortium for Worker Education (CWE) as well as newer groups like Green City Force. With the Federal and State governments' commitment to energy efficiency as an economic stimulator, we have ramped up our program to help meet the

## SOLAR ONE 1973 — 2009

## timeline key

- Past
- 2009

## event mark key

- Accomplished
- On going
- Persisting goal

## 1973

A petition for a Park at Stuyvesant Cove, supported by the community, is submitted to Community Board 6.



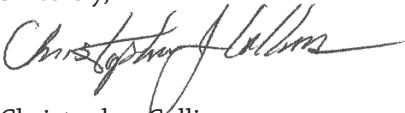
demand for people who can perform the tasks that help our buildings save energy and money. The market for solar PV has also showed signs of growth that we are working to foster through our Energy \$mart Communities and I ♥ PV outreach programs. Now, armed with a rising demand for training and a new training facility in development in Long Island City, we stand poised to help train hundreds more people for jobs in the emerging green sector during 2010. We are indebted to CEC for their support of this program.

The coming year will see plenty of action in our other program areas as well. Already we are seeing an increase in requests for our K-12 educational programs and we have put out the call for submissions for our Solar-Powered Dance Series. The I ♥ PV team is working on the new GNR8R campaign. Our Energy \$mart Communities program has added staff to better promote NYSERDA's array of residential and commercial programs and reach new constituencies, and the TruLight eco-entrepreneurship program is ramping up at several new venues.

2010 will also see the ground-breaking for Solar 2, our LEED Platinum, net-zero energy use building that we can't wait to be able to open and share with the rest of the City. The cause of protecting our environment has so many repercussions for our health, our communities and our economy, and Solar 2 will be a place where the intersection of those elements is on display like no other place in New York City. Even with the new focus on green buildings and technologies, Solar 2 has an important role to play in putting those ideas into a tangible form that can drive home the message that the time to implement these methods and measures is now. Of course, it will also give us an expanded home base from which to offer our growing slate of programs, making it a hub for educational, artistic and outreach activity in the local and environmental communities alike. As a result, we're very excited to get a shovel in the ground and we will certainly be providing updates on our progress throughout the year.

Though we are happy with our achievements to date, we are mindful of the challenges ahead. While our role will continue to evolve, we know that we are uniquely positioned to continue the cultivation of a cleaner, brighter, greener tomorrow through our education, outreach and advocacy work. With your continued help, that tomorrow will move ever closer to reality.

Sincerely,



Christopher Collins  
Executive Director

1979

A Request for Proposals is sent out for the development known as Riverwalk, a complex of residential and commercial towers to be built at Stuyvesant Cove.

# Park Overview

Stuyvesant Cove Park is New York City's only native plant, sustainably managed park. Situated on a 2-acre strip along the East River between 18th Street and 22nd Street, Stuyvesant Cove mimics the ecosystem that flourished along the eastern seaboard prior to modern development. From Eastern Red Cedars to Butterfly Milkweed, a visit to our park is a refreshing and all-too-rare peek into New York's preindustrial past. No chemical fertilizers or power tools are used in the park's daily maintenance, making it not only a showplace for native plants but a live demonstration of organic gardening techniques.

Sandwiched between a Con Edison power plant and a Gulf gas station, and built on the site of a former concrete factory, Stuyvesant Cove is a beautiful example of how thoroughly reclaimable even the most neglected site can be. The Park also serves as an excellent educational tool for our Enrichment, Estuary and Park Ecology programs.

This year's highlights included observing the transformation of our first-ever Eastern Black Swallowtail butterfly, adding 450 additional plants and providing 100 volunteers with 3500 hours of outdoor gardening work! We worked with numerous volunteer organizations including NY Cares and City Year, and also employed 80 interns from the Consortium for Worker Education, an agency that gives employment opportunities to at-risk and underemployed youth.

1986



Stuy Cove before the Park

At a public hearing, a large crowd shows up to hear the plans and voice their concerns over the Riverwalk project. After the meeting, a group named Citizens United Against Riverwalk is formed to combat the development of the area.

# Park Programs

Staff \* Volunteers \* Plants \* Educational Signage \* Stuyvesant Strolls \* Family Days



## Stuyvesant Cove Park

*Jeffersonia diphylla*, one of the early spring flowers in the Park.

photo credit: Melissa McDonald/Solar One



## Stuyvesant Cove Park, Butterfly habitat

Eastern Black Swallowtail butterfly (affectionately named Mini-me by Park Manager Melissa McDonald) that was attracted to the dill in the herb garden outside of Solar 1.

photo credit: Melissa McDonald/Solar One



## Family Day, Go Fish!

A young fisherman learns to bait a hook.

photo credit: Dina Elkan/Solar One

1990

The Riverwalk plans are officially squashed by the Mayor's office.

Community Board 6 adopts 19 specific planning objectives and three broad policies to guide development of open space at Stuyvesant Cove.



### Stuyvesant Cove Park

Monarch butterfly visits the park.

photo credit:  
Melissa McDonald  
/Solar One

## Stuyvesant Cove Park

With the conclusion of another successful growing season, it is always wonderful to look back on all that transpired in our 2-acre park along the East River. The wonderful thing about nature is that it is so dynamic, and with this comes the excitement of the unknown, and in some cases the unexpected...

In 2008, Park Manager Melissa McDonald decided to plant a small herb garden in the plot behind the Solar 1 building. Among other choices, she planted some dill plants, which settled in nicely and did very well. This summer, Melissa noticed a large black-and-green striped caterpillar with yellow spots feeding on the dill; this was a very different caterpillar from the Monarch caterpillars that are common around Stuy Cove, thanks to our Butterfly Milkweed. After the newcomer devoured the dill, it began heading toward the Park to find a nice spot to make its chrysalis. But between the herb garden and the Park was a daunting obstacle: the many yards of blacktop, full of dangerous bikers and pedestrians, that the caterpillar would have to cross! Melissa helped the little creature along by picking it up and putting it in one of the plant beds, where it promptly formed its chrysalis on a Phlox plant. After a short time, the chrysalis turned black and the next day, a beautiful Eastern Black Swallowtail butterfly emerged. It stuck around long enough for us to get a picture (see previous page) and for Melissa to nickname it Mini-me.

## Staff

Managing a park is a huge job, too huge for any one person. Park Manager Melissa McDonald's team is an indispensable part of keeping Stuy Cove gorgeous and healthy.

Daisy Hoyt, who has been Solar One's seasonal gardener for the past two growing seasons, has become intimately familiar with the park and its plants. She knows what every plant is, where they all are, and which ones need more care than others. She is integral in managing the hundreds of volunteers and interns that work in Stuyvesant Cove Park, and has an ever-growing knowledge of native plants and horticulture.

The man that does it all (and is apparently glad to do so) is Chris Fowler, our park maintenance employee. What a joy it is to have Chris as part of the Solar One team! He is the go-to guy for anything, is always willing to help and is always on time and dependable. Chris undertook the task of dismantling and staining all the benches in the park this summer. Not an easy task, and one that took him the better part of 3 months, but now the benches look amazing, thanks to Chris.

## Volunteers

In 2009, over 100 individuals contributed more than 3,500 volunteer hours to Stuyvesant Cove Park. Groups such as Sidwell Friends Alumni, NY Cares, City Year NY, and NY Life took time out of their weekend schedules to help maintain Stuyvesant Cove Park. The Park has also attracted a wonderful group of local community members who donate many hours of labor and create a real sense of community through their dedication to the park.

Stuyvesant Cove Park also has a number of interns. CWE (Consortium for Worker Education) and Manhattan Comprehensive High School interns make up the majority of hours worked in the park in any given year. These interns work anywhere from 15-35 hours each week and

## 1999



Community Board 6 passes a resolution in which they reject the concept of putting a restaurant on the site, and support building an environmental center as a maintenance mechanism for the park.

Fishing at the beach



acquire many gardening and horticulture skills. This year's park interns worked extremely hard and enjoyed learning about insects (which many were afraid of when they started), plants, how they survive, and their relationship to each other. Their eyes lit up when we started talking about the Monarch butterflies and the host plants that live in our park. From that moment on, we had interns constantly on the hunt for Monarch chrysalides and caterpillars, which may not have been as productive as we would have liked, but was extremely rewarding just the same.

## Plants

All plants in Stuyvesant Cove Park are New York native species. Most could have been found in the city 200+ years ago. This year, Solar One, due to the ongoing generosity of the Greenacre Foundation, was able to install over 450 plants for Stuyvesant Cove Park. *Anemone virginiana*, *Geum laciniatum*, *Asclepias syriaca*, and *Pteridium aquilinum* are a few of the new plants that were added this year. Most of these plants were planted in the fall by our volunteers, and many seem to have taken very well. We are all very excited to see how they do in the spring.

## Educational Signage

This year Solar One and Stuyvesant Cove Park were the recipients of a generous grant for park educational signs. These creatively designed panels will be a great form of passive education in the park, as well as a useful tool for our education department. Information on ecology and native plants, as well as historical information about New York City, will be the main focus of the information on the panels. This educational signage will be installed in the park in spring 2010.

## Special Programs

The first of our annual programs in the Park is Stuyvesant Strolls, which is a plant-focused walking tour of the park. These walks highlight individual plants according to the season, and give attendees in-depth information on a variety of plants, while also incorporating organic and sustainable park maintenance strategies. In 2009 we partnered with NYC Audubon to co-lead the tours, expanding the material on native and migratory birds that either live in, or visit, our park.

The other annual program in Stuyvesant Cove Park is our Family Day series. In May, we held NYC Wildflower Day, a celebration of the importance of native plants and their communities. Children and parents alike very much enjoyed the great crafts and activities at this event. Orff by the River, a wonderful hands-on musical event named for the composer Carl Orff, encouraged children and adults of all ages to pick up an instrument and join the fun, co-hosted by the Turtle Bay Music School. Creatures Day, the third event in the Family Days series, was another hands-on educational experience, this time with native creatures brought to us by Nature's WILD Encounters. Snapping turtles, Mallard ducks and native snakes and frogs were all on hand, with the kids being able to hold and pet them. Finally, at Go Fish Day, co-hosted by NY DEC, kids young and old learned about the different species of fish in the East River and mastered proper techniques for baiting and casting. We'll be holding more of these very popular events in 2010.



**Family Day, NYC  
Wildflower Day**

Celebrating native  
wildflowers in the Park

photo credit:  
Melissa McDonald  
/Solar One

## 2001

EDC designates  
Community Environmental  
Center (CEC) as the  
steward of Stuyvesant  
Cove Park.

NYSERDA agrees to give  
CEC a 3-year \$750,000  
development grant for  
the implementation of  
the project.

# Education Overview

The Solar One Education program has grown by leaps and bounds since its official start in 2004. Over the last 5 years, we have taught Enrichment classes in Renewable Energy, Sustainable Design, East River Estuary Ecology and Park Ecology to over 20,000 students from 120 schools, including 1,900 from 35 schools in 2009 alone.

The mission of the Education program is to facilitate applied experiential learning opportunities through science, design and art. Our programs explore relationships between the natural and built environment using the urban ecology of New York City as a focal point to investigate renewable energy, sustainable design, estuary ecology, and environmental art.

Along with classes for students, the Solar One Education program was able to continue to offer professional development trainings to high school teachers interested in our Green Innovator™ sustainable design curriculum, thanks to the generous support of the Motorola Foundation. Solar One also developed a curriculum for the Green Design Lab™, a program where students do an energy and sustainability audit of their school building and then create plans to address the issues they uncover. These programs were accompanied by printed curriculums which are now available for purchase. In the following pages, you will read about the pilot program for the Green Design Lab at City-As-School in Manhattan. Spoiler alert: it was a big success.

## 2002

Park construction finishes and CEC begins handling landscaping and other duties in the Park while lease negotiations with EDC begin.

## 2003

Solar One officially opens! A dedication ceremony for Stuyvesant Cove Park and Solar 1 takes place with over 300 in attendance, including Manhattan Borough President C. Virginia Fields, Congresswoman Carolyn Maloney, City Councilwoman Eva Moskowitz, Assemblyman Steve Sanders, State Senator Roy Goodman, State Senator Thomas Duane, NYSERDA President Peter Smith and other dignitaries, officials and guests.



Solar One opens, 2003

# Education Programs

**K-12 Enrichment \* Growing Up Green Charter School \* Estuary Program \* Green Design Lab™ \* Green Innovator™ \* LIFTT Intrepid Sea, Air & Space Museum \* Other Projects**



## **Green Design Lab™, Water Project**

City-As-School students work on a water quality project as part of the Green Design Lab.

photo credit: Sarah Pidgeon/Solar One



## **Green Stops Partnership**

Student participates in the Green Stops Healthy Fall Festival, a Green Stops Partnership event with NYRP, Mount Sinai and Sustainable South Bronx.

photo credit: Sarah Pidgeon/Solar One



## **Measuring Oysters**

Educator Alex Smith shows a sample of the young oysters in the beds at Stuyvesant Cove.

photo credit: Sarah Pidgeon/Solar One

## **2004**

First season of educational programming offered to public and private schools around the city.

By the end of the year, more than 2500 grade, middle and high school students have participated in our education programs.





### Green Design Lab™

Students do water quality tests for “A Day in the Life of the Hudson River.”

photo credit:  
Sarah Pidgeon  
/Solar One

## K-12 Enrichment

The Solar One Education program is continuing to gain recognition and acclaim for its innovative enrichment programs in New York City. Schools and non-profits from across the city have recognized Solar One for our creative and cutting-edge programming that intersects urban sustainability, energy literacy, and experiential education. Our short-term enrichment initiatives are one of the only programs in New York City discussing topics of renewable energy and sustainable design – and because of this, the department has seen an increase in demand for these programs. **This season we have reached 1900 students in all five boroughs, engaging 35 different schools through multi session in-class programs and field studies.**

What better way to learn about science, math, technology, and literature than by studying local ecology? Solar One’s system-thinking approach, utilizing knowledge of green building, solar energy systems, and estuary ecology to address local concerns and encourage students to think about how the urban environment works and how its elements affect each other. Our programs—neighborhood walks, solar design labs, model making, classroom energy audits—use experiential learning and design-based projects to effectively break down and teach abstract concepts of sustainability.

Solar One is constantly developing our K-12 Enrichment programs to match the local demand for sustainability education. Currently, we are offering 3-session programs in Renewable Energy, Sustainable Design, Ecological Art, East River Estuary, and Park Ecology. In addition, we received vendor status from the Department of Education, added more activities and hands-on projects to our curriculum, and are currently developing a 3-session extension to our extremely popular Renewable Energy program.

## Growing Up Green Charter School

The Growing Up Green Charter School (GUGCS) opened its doors this September to Kindergarten and First Grade students and has already been featured in the NY Times and the NY Daily News. The GUGCS empowers children to be conscious, contributing members of their community. Solar One has been working with the GUGCS teachers and science coordinator to develop a curriculum and interdisciplinary projects that meet NYS Standards while incorporating themes of sustainability and green culture. In addition, Solar One educators are helping GUGCS develop afternoon “Explore and Discover” time in a way that will demonstrate the importance of community with group work, class, and school-wide projects.

During 2009, Solar One educators led professional development workshops for the GUGCS staff, participated in the Fall Harvest Festival, and worked closely with the science coordinator to plan field trips. During in-class sessions with Solar One, the GUGCS students learned about recycling, waste, composting, and sustainable building materials. With the rising demand for green schools in the metropolitan area, GUGCS is at the forefront of a green schools revolution in New York City.

### 2004

CEC holds the first “Revelry By the River” fundraising gala, increasing awareness of Solar One and Stuyvesant Cove Park, raising funds for programs and the park, and honoring NYSEDA President Peter Smith.

CEC establishes “CEC Stuyvesant Cove, Inc.” as a separate non-profit entity.

Chris Collins is hired to be CEC Stuyvesant Cove’s Executive Director.



## Estuary Ecology Education

This year, Solar One took great steps to improve and raise awareness of the East River Estuary. In 2009, Solar One delivered 27 sessions of our Estuary Ecology program to a wide range of New York City students, from 2nd graders to university-level. These classes represent 587 additional students that have been given a better understanding of the New York City Harbor and East River Estuary. This knowledge will hopefully inspire them to be stewards of the river and raise their awareness of human impact on the environment. It is often difficult for New York City schools to utilize one of our region's greatest natural resources, and Solar One provides an invaluable opportunity for these schools to gain access to the waterfront.

## Oyster Gardening

In 2009, Solar One continued our partnership with NY/ NJ Baykeeper as a member of their Oyster Gardening Program. This program is designed to determine the best location around the NY/NJ Harbor for re-introducing the bivalve into our waterways. This summer, Solar One was given the custody of hundreds of oysters that we have planted along the East River. Every month we take measurements of a sample of 50 oysters to chart growth and survival rates. This data is sent to Baykeeper staff, who compile data from multiple test sites around the City to compare which sites are providing the most successful conditions for the shellfish. This data will be used in the future for more intensive gardening programs that will hopefully require less and less management until the oysters are numerous enough to repopulate our waterways on their own.

The oyster gardening program is an incredible tool for estuary education at Solar One. It enables our students to interact with live organisms that make their home in this often-overlooked waterway. This interaction captivates students' attention in ways that classroom lessons cannot. The program inspires the next generation of environmentalists while providing a valuable ecosystem service: Oysters naturally filter water through their feeding habits, and by helping to repopulate them, we are cleaning up the East River.

Because this program has the dual potential for improving our waterways and enriching Solar One's estuary ecology education program, we are currently exploring possibilities for increasing the number of oysters we manage. Working with The New School, we are looking into designing new sustainable methods of housing them to help them grow. While this project is still in development, we are very excited about the collaboration and its implications. We are also looking into acquiring a FLUPSY, a solar-powered floating upwelling system that is used to help oysters grow and reproduce.

## Sonde Water Quality Monitoring Station

Our automated water quality monitor continues to be useful to our program. Through Solar One's website, this information can be accessed publicly at any time.

The water quality monitoring station has improved the accuracy and content of our estuary ecology program, providing valuable weather, water quality and environmental data. In a field study, students measure their own water quality values using simple LaMotte testing kits, and then compare their results to a more detailed data set supplied by the monitoring station. This procedure illustrates the accuracy of the students' test, and demonstrates that useful scientific data can be obtained through a fun activity!



**Estuary Education**

Educator Alex Smith works on the Water Quality Monitoring Station in the Park.

photo credit:  
Sarah Pidgeon  
/Solar One

## 2005

CEC Stuyvesant Cove, Inc. begins using the name "Solar One" to help distinguish the organization and more closely tie-in to its mission.

### Naima Freitas's class loved participating in the Green Design Lab™

"... As a teacher I'm aware of the need to inform and inspire our young adults to help address our shared environmental concerns. Each week during the Green Design Lab™ with Solar One, I was thrilled to see that my students were engaged in thinking about environmental problems... rather than become overwhelmed and apathetic, they were actively discussing and designing solutions. For example, after analyzing the food prepared and served in our cafeteria and visiting two local, urban farms, students were equipped and motivated to design a hydroponic system to grow food in our greenhouse and to design a course where students could grow food at our school. Now that my students have had the opportunity to analyze the problems and design some solutions I am currently offering a class called "Green Projects." In this class students will be redesigning our courtyard garden to be more ecological and educational, they will be designing and building hydroponic systems, as well as a rainwater collection system and compost bins. The momentum to "be the change we want to see" stems from the excellent foundation of knowledge and passion that they obtained through their experience at Solar One."

— Naima Freitas, City-As-School teacher

"I've learned how to be a lot more aware of what I do, eat and create. I would really like to do more in my community, for my community. Our trip to the rooftop farm really inspired me and gave me hope that one day I can build one myself."

— Alex, City-As-School student

## Green Design Lab™

In partnership with City-As-School of Manhattan, Solar One completed a successful inaugural semester of our educational program The Green Design Lab™. Written by Chris Kennedy, this program is a step-by-step guide to "greening" a school building. The curriculum challenges students to understand the environmental impact of their school and to design feasible, creative ways to reduce the school's environmental footprint. The students look at the school through six modules—energy, materials, water, food, air quality, and recycling—and learned through activities like building DIY water filters and conducting energy audits of the building. In addition to classroom learning, they attended field trips to the Astoria Power Plant, the Ice Stone Factory, the Greenpoint Rooftop Farm, and more!

## Green Innovator™

Created for a planet facing many environmental challenges, the Green Innovator™ is a new program and curriculum for 21<sup>st</sup>-century high school students that explores the process of innovation through sustainable design. The Green Innovator™ helps teachers facilitate dialogue by providing hands-on activities, case studies and research ideas with students that develop their understanding of the integral role of design, green manufacturing, and long-term global thinking. The curriculum encourages applied learning by introducing students to the concept of systems thinking: considering the relationships and connections between the design and use of everyday things, and the impact this use has on our shared home, Earth.

The Green Innovator™ is the perfect tool for sustainability education. Throughout 2009, Solar One has delivered several Green Innovator™ teacher-training sessions around New York City. We hosted these workshops at Career and Technical Education schools, as well as the Cooper-Hewitt National Design Museum. **In 2009, we worked with over 50 teachers, providing them with curriculum books, classroom materials, and continued technical support.** We also started an interactive blog, or "ning", so that teachers using the curriculum can keep in touch and share projects and ideas.

## LIFTT Intrepid Sea, Air & Space Museum

In partnership with the Intrepid Museum, Solar One educators are working with the LIFTT, or Leadership Institute for Today and Tomorrow, program. A cohort of 50 New York City high school juniors participates in LIFTT, a year-long series of free programs that develop their leadership skills and help them mature into engaged and active community participants. Through sessions at the Intrepid

## 2005

The first Solar-Powered Arts Festival presents dance, music and film events, attended by several thousand New York residents and visitors between June and September.

**New Programs** Two new programs are introduced: Citysol, a free music festival and green product fair; and the Green Renter, a lecture series to help city dwellers understand and implement strategies for making their urban lifestyles greener.



Citysol 2005

and partnerships with local service organizations such as Solar One, LIFTT seeks to work with the student who has yet to realize their full potential. It is the vision of the Intrepid Museum that upon completion of this unique program, the students gain a heightened sense of community awareness, and are inspired and ready to serve not only their own communities, but the larger national and global communities. Solar One Education will be providing several intensive workshops for these students, touching on themes such as community building, civic engagement, service learning, climate action, and energy literacy.

## Other Projects

### NYSERDA Energy \$mart Teachers Workshops

Solar One is partnering with NYSERDA's Energy \$mart Students program to deliver Energy Education workshops to teachers in NYC. Our educators have delivered four full day professional development NYSERDA workshops this year, and we plan to increase this number for 2010.

### Outreach Events

Solar One's education department participated in several outreach events this year:

1. 2009 NYC Outdoors Environmental Education Expo
2. Open House New York at The Center for Architecture
3. Green Schools NYC 2009, hosted by the Green Schools Alliance
4. Green Stops Partnership, Growing Up Healthy Fall Festival



**LIFTT Intrepid Community Mapping Project**

Students in the Leadership Institute for Today & Tomorrow make community maps with Solar One educators.

photo credit:  
Sarah Pidgeon  
/Solar One



**Green Design Lab™**

City-As-School  
Green Design Lab™  
student with a strawberry  
at the East NY Farm.

photo credit: Naima Freitas

# GCJT Overview

Solar One's Green Career Job Training program is an example of a clear need and an obvious fit. The interest in energy efficiency, weatherization and making buildings and the building trade more sustainable is at an all-time high. The promise of a green economy is that it would create jobs within the community and opportunities for those most vulnerable to poverty and incarceration.

The program that we've put together combines Solar One's expertise in renewable energy education, the Community Environmental Center's experience in weatherization and building performance, and partnerships with a wide variety of workforce agencies and groups that are already dedicated to serve at-risk and chronically underemployed populations.

The program focuses on six tracks: Environmental Literacy, Building Performance, Solar Photovoltaic and Thermal Installation, Green Building Maintenance, Deconstruction, Materials Management and Recycling and Horticulture, Landscaping and Park Maintenance.

Solar One's mission is to inspire New Yorkers with the vision, knowledge and resources to attain a more sustainable future for our city, and ultimately, our world. The Solar One Green Career Job Training program is designed to offer access to that knowledge to the community that can most directly benefit from it. We trained 398 students in 2009, but the program has the potential to reach as many as 800 in 2010.

## 2006

**TruLight launches!** Solar One partners with Manhattan Comprehensive Night and Day School on a youth-led public outreach campaign that combines educational content and internship opportunities in environmental careers and businesses. 20 Students participate in TruLight, selling 2,000 CFLs, saving an average of 55W per bulb, and 160,600 kWh in annual electricity savings, not to mention a lifetime CO<sub>2</sub> emission reduction of 991,596 lbs. Major funders include HSBC, NYSERDA and CDI.



2006 TruLight class



# Green Career Job Training

Program Tracks \* Participants & Partners \* Future Growth \* TruLight Youth Eco-Entrepreneurship



## Green Career Job Training, CEC Lab

Instructor Anthony Alexander (front, center), Instructor David Gibbs (far right), and GCJT Development Director Michael Johnson-Chase (back, left) with the first GCJT PV installation class.

photo credit: Pauline Augustine/Solar One



## AAFE TruLight Students at the UN

To help commemorate the 20th anniversary of the Convention on the Rights of the Child, AAFE TruLight students presented their eco-businesses to UN delegates, educators and peers.

photo credit: Ji-Yoon Chung/AAFE



## Green Career Job Training, PV Installation

STRIVE GCJT trainees work on a panel at Solar One.

photo credit: Pauline Augustine/Solar One

**Energy Independence Day** Solar One in conjunction with Rooftop Films puts together a ticketed event that allows access to the blacktop portion of the site during the July 4th festivities. In just over a week, nearly 400 tickets are sold!



Energy Independence Day



### **Thierno Bah: student gone professional**

Thierno Bah was a student at Manhattan Comprehensive Night and Day High School when he became a student intern for the I Heart PV program. After learning about energy in general and photovoltaic energy in particular, Thierno attended the training course on PV installation as part of the internship. Following this training, he was hired as an installer by AEON Solar in NJ where he has worked on several PV installation projects in NJ, Brooklyn and the Bronx. With a growing market for solar power in New York City and the Tri-State area, Solar One is working to prepare other young adults like Thierno for a job in tomorrow's green economy.

photo credit: Chris Neidl/Solar One

## **Program Tracks**

In 2009, the Solar One Green Career Job Training Program experienced explosive growth. Over 350 students participated in programs as varied as environmental literacy and green consumer education; climate change and green jobs; hard skill technical training in energy efficiency; renewable energy; green building maintenance; deconstruction and materials management; and horticulture and landscaping.

### **Photovoltaic and Thermal Installation**

Solar One's Solar Photovoltaic and Thermal Installation courses teach the science and mechanics of solar photovoltaic (PV) and solar thermal systems, provide students with hands-on installation training, and expose them to current information on grid-interconnection, net-metering and rebates. Solar One teaches a pre-certification entry-level solar installation course modeled on the NABCEP entry level exam to students in a green construction training program at STRIVE, East Harlem. This course is an on ramp to a 40-hour certification course at Bronx Community College.

### **Environmental Literacy**

Environmental Literacy courses introduce underskilled and transitional workers to climate change, the emerging green economy and sustainable practices.

### **Building Performance**

Building Performance courses introduce students to the concept and practice of energy efficiency, including methods for assessing the energy use of new and existing buildings and techniques for retrofitting buildings to increase efficiency. Soon to be a Building Performance Institute (BPI) affiliated training organization, Solar One is currently developing curriculum for the upcoming "Air Sealing and Insulation Professional" certificate soon to be offered by BPI.

### **Green Building Maintenance**

Green Building Maintenance courses teach ways to manage buildings to promote occupant health and resource efficiency, with particular attention given to three elements: a healthy indoor environment, maximum energy efficiency, and conservative, thoughtful use of natural resources.

## **2006**

The Sun To Stars South Asian Festival is held as a four-hour event, inaugurating one of the most unique of Solar One's cultural offerings.

## Deconstruction, Materials Management and Recycling

Deconstruction, Materials Management and Recycling courses are in development. They will teach closed-loop waste reduction demolition processes by showing participants how to extract and save usable building materials for re-use. This program is in development with sister organization Build It Green! NYC, a CEC affiliate and one of two salvage recycling organizations in New York City.

## Horticulture, Landscaping and Park Maintenance

Horticulture, Landscaping and Park Maintenance courses teach students how to plant and maintain sustainable urban forests and grasslands, and how to conduct research and promote the many benefits of sustainable greenery. This program is taught at Stuyvesant Cove Park, just south of the current Solar 1 classroom, and the future home of Solar 2.

## Participants & Partners

Training participants include chronically unemployed and underemployed individuals in workforce training programs that serve the formerly incarcerated and/or addicted; disconnected youth; veterans; the homeless; and residents of public housing. Green Career Job Trainings feature classes and lab experiences taught by highly experienced instructors, enhanced by field site opportunities through the Community Environmental Center (CEC), other WAP agencies, and NYSERDA-approved solar PV and thermal contractors. These trainings are taught in ongoing and planned partnerships with schools and workforce agencies such as the Vocational Foundation Institute (VFI); STRIVE, East Harlem; Manhattan Comprehensive Night and Day High School; Building Works; Consortium for Worker Education; Covenant House, New York; Green City Force; Common Ground; Phoenix House; Nontraditional Employment for Women (NEW); the Cooperative Technical High School; and District 79.

## Future Growth

In 2010, the green job training program will more than double in size to serve approximately 500 trainees in more than 25 courses in topics as varied as basic weatherization, building performance, green construction, solar electric and thermal installation, consumer education and environmental literacy. In addition, we will conduct teacher-training workshops in how to “green” carpentry, plumbing, electrical and building maintenance curriculums. As we may receive additional funding through several grants from the Department of Labor in 2010, we may serve additional trainees, bringing our total of committed, scheduled, and highly probable trainings to more than 800 trainees.



**Green Career Job Training, PV Installation Class**

STRIVE trainees learn how to hook up an inverter.

photo credit:  
Pauline Augustine  
/Solar One



**Green Career Job Training**

Students from United Way LI on a field trip at Eastern Energy in Laurel, NY.

photo credit:  
Moreno Tagliapietro

**Solar 2 is featured in an editorial in Architecture 2030.** The publication highlights the importance of Solar 2 as a carbon-neutral building in the context of the 2030 Challenge, which posits that all new buildings should be carbon-neutral by 2030.



Architecture 2030





**TruLight,  
Eco-Entrepreneurship  
Expo**

TruLight students  
present their eco-  
products at Sony  
Wonder Lab.

photo credit:  
Ji-Yoon Chung/AAFE

## TruLight Youth Eco-Entrepreneurship

The TruLight Environmental Entrepreneurship program helps teens and young adults develop a sustainable model for a green business that improves the environment. The program targets low-income communities, diverse populations, and non-traditional students to deliver entrepreneurial training. Participants engage in both classroom training and real-world experiences that allow them to broaden their knowledge of green industry while simultaneously implementing their plans through product sales and presentations to the general public. TruLight provides a comprehensive program model that empowers its participants to take action, balancing the relationship between making profit and reducing harmful risks to both the planet and its people.

### As a result of participating in this program, students:

- Learn how to start and run their own business
- Develop a deeper understanding of ecological needs within urban communities
- Cultivate life skills such as communication, leadership, and team work

The 2009 school year was full of milestones for the TruLight program. The program reached over 150 participants through 6 program locations, conducted business plan presentations for 9 businesses, partnered with 7 additional organizations that provided program support, helped to fund 3 businesses that were actually implemented, and had a nationwide segment on the Sundance Channel addressing the importance of Green Entrepreneurship.

During the 16 weeks of the program, teens and young adults at each New York City program location form TruLight™ teams and attend interactive training sessions for 90 minutes to 2 hours per week. Participants engage in a variety of activities to build knowledge of green industries and practices; gain business skills such as marketing, public speaking, finance, and sales; and receive leadership development training. These trainings and activities serve as stepping stones, ultimately resulting in the development of a sustainable business model by each team.

### Program Locations for 2008-2009:

Asian Americans for Equality (AAFE), Manhattan

Flushing YMCA Youth Build program, Queens

Manhattan Comprehensive Night and Day High School, Manhattan

PS 282, Brooklyn

Acorn High School for Social Justice, Brooklyn

Bushwick Campus High School, Brooklyn

TruLight Program Highlights- Asian Americans For Equality (AAFE)

In February 2009, the AAFE students participated in the filming of a Sundance Channel documentary that featured the TruLight program. The filming captured the kids in action both within the community as well as within the classroom setting. The documentary was aired in April 2009.

## 2006

### Solar One Educates!

Solar One connects with 10 more schools, reaching a total of 25 institutions from all 5 boroughs, and educates 3,000 students.



ICE students at Solar One

In 2006, the Green Renter series covers more than 30 topics for a total of 1,000 attendees.



One key goal of the TruLight Environmental Entrepreneurship program is that the students be allowed the opportunity to develop a sustainable business model by creating a business plan, doing a presentation, and finally, implementing that plan. In May 2009, the students presented their final business plans to an audience of about 50 people at the Sony Wonderlab in Manhattan. The students were able to sell their products and present their business plans to a selected panel that was able to give them the proper feedback that they needed in order to continue operating their businesses. Since this special event, the program participants have sold their products at several events across the city and have presented their business plans to several audiences.

In December 2009, the students presented their Green Business plans at a special event at the United Nations. To celebrate the 20th anniversary of the UN Convention on the Rights of the Child, the UN hosted a discussion of children's rights globally, and what communities and organizations can do to bring solutions to the problems of childhood abuse, poverty and exploitation. AAFE TruLight participants presented their Green Business Plans for an audience of approximately 300 guests using a PowerPoint presentation and an interactive video.

## Student Eco Business Plan Ideas

**Step by Step** — Origami home ornaments made from used paper.

**Natural Cycle** — Loofah Sponge, an organic sponge that can be used as a body scrubber or as a cleaning tool.

**Re-Fash** — A clothing company that takes used clothing and creates new, fashionable garments.

**Fruit Organic Milk** — Organic milk to ensure more customers can drink healthy dairy products while enjoying different and satisfying flavors.

**Computer Recycling** — A service that refurbishes computers to be used in deprived areas of Africa.

**Eco-Friendly Buildings** — An energy audit business that serves homeowners by helping them to conserve and reduce costs.

**Eco Friendly Shoe Repair** — Provides shoe repair that using non-toxic materials.

**World Awake Call** — A non-profit that plants and maintains trees in Africa to restore ecological balance in places with high levels of deforestation.



**AAFE TruLight Students at the UN**

Presenting eco-business plans to celebrate the 20th anniversary of the UN Convention on the Rights of the Child.

photo credit:  
Ji-Yoon Chung/AAFE

**In The Park** Park Manager Melissa McDonald spends her first full year at Stuyvesant Cove Park. In that time she hired 62 interns, recruited 150 volunteers who worked 3,500 hours and planted 2,000 new plants.

The National Wildlife Federation designates Stuyvesant Cove Park as Wildlife Habitat #50805.



Giant native hibiscus

# Green Energy Arts Overview

The Solar One Green Energy Arts Festival is a summer-long series of free, solar-powered outdoor events. The Festival demonstrates the possibilities of renewable solar energy in the urban context while also providing a unique setting combining natural and built environments. The audience is invited to consider all these ideas while enjoying a high-caliber cultural experience.

All Green Energy Arts Festival events are free, open to the public, suitable for all audiences, and powered with energy generated by the photovoltaic panels on the Solar 1 roof. In 2009, we presented emerging and established choreographers, hip-hop, indie, traditional and electronic music, DJs, documentaries and performance art — overall, the work of over 100 artists—to over 3,500 attendees.

Over the last 5 years, we've worked hard to make Solar One a cultural destination for New York City residents and visitors alike. Our arts events have been covered in many of the city's newspapers, weeklies and blogs, including the NY Times, the Village Voice, Time Out NY, Flavorpill, Brooklyn Vegan, Daily Candy, the L Magazine and the NY Press. We have also formed long-lasting partnerships with other cultural and environmental groups around the city, most notably with Rooftop Films and Green Edge Collaborative, partnering with them to put on the Solar-Powered Film Series.

## 2006

**Solar One begins fundraising for Solar 2**, receiving \$25,000 from the New York State Council on the Arts (NYSCA) for design charrettes, and \$90,000 from the Kresge Foundation's Green Building Initiative for planning and design integration. Our first major capital commitment comes from Manhattan Borough President Scott Stringer, followed by additional commitments from City Councilman Dan Garodnick, the Manhattan Delegation to the City Council and Council Speaker Christine Quinn. In total, these commitments amount to \$1.2M for development and construction.



Original Solar 2 design

# Green Energy Arts Programs

Citysol \* Solar-Powered Dance Series \* Sun To Stars South Asian Festival \* Solar-Powered Film Series  
\* Our Lady Of Detritus



## Citysol

Dead Prez headlines the 2009 Citysol Festival. Hundreds of fans approve.

photo credit: Sarah Pidgeon/Solar One



## Sun To Stars South Asian Festival

*Dar Mian – The Space In-between*, Parul Shah Dance Company

photo credit: Marcus Simpson



## Our Lady of Detritus, thinkdance

Choreographer Jill Sigman and composer Kristin Nordeval bring their trash confessional performance art piece to Stuyvesant Cove Park.

photo credit: Dina Elkan/Solar One

The Architect's Newspaper features Solar 2 as one of "Three Exemplars" of sustainable architecture alongside One Bryant Park (potentially the first LEED Platinum commercial high rise) and Battery Park City.



The Architect's Newspaper





**Citysol 2009, Rachel Trachtenburg's Homemade World**

Teen performer Rachel Trachtenburg teaches kids to “Turn Off the Water When You Brush Your Teeth”.

photo credit:  
Dina Elkan/Solar One

## Citysol

Citysol 2009 built on the relationships and ideas that have been developing since 2004. Citysol is the first sustainability festival to be held in the city, described by the NY Times in 2007 as “Live Earth without the hype”. In 2009, the festival was held on July 10-12. Over the course of these three days, hundreds of people came to hear music, eat local food and explore the possibilities of renewable energy. This year’s site design, by Eco-Pioneer, was an urban tiki lounge complete with thatch-topped umbrella. Attendees enjoyed a variety of wind-powered beers provided by Brooklyn Brewery, ate locally sourced, sustainably made snacks from Rabbit Mafia, and were entertained by a wide variety of musical acts, ranging from hip-hop to avant garde to punk rock. The festival also included performances by local artists; an Artist Habitat, or temporary art studio made of reclaimed materials; and an I ♥ PV Party for a Solar-Powered New York, where participants learned about solar advocacy and made custom-designed solar racers. The entire event was free and open to the public.

## Music

This year’s music, like last year’s, was co-curated by Solar One and Digiwaxx Media. Crowds rocked out to the activist hip-hop of Dead Prez; the harmonium pandemonium of Shilpa Ray & Her Happy Hookers; the gentle, edgy folk-rock of Jen and the Moon; the lush electronic dreampop of Love Like Deloreans; experimental indie rock from Hi Red Center and Fiasco; Brooklyn-born punk from So So Glos; plus sounds from Lower East Side alterna-duo Schwervon, R&B songstress Ihsan and hip hop wunderkind Outasight. On Saturday, more than 500 people braved the uncertain weather to see the headliners, Dead Prez.

## Art

In partnership with EcoArtspace NYC, Solar One brought artist Simon Draper’s Habitats For Artists project to Solar One. Two artist sheds, or temporary studios, were erected on the blacktop area to the south of Solar One. Made out of salvaged materials, including old artworks, the studios provide low-cost studio space and also comment on the lack of affordable art space—a particularly acute problem in Manhattan. They also encouraged viewers and users to consider the boundaries of public versus private space, and how that space is designated and allocated. During Citysol, Simon answered questions from attendees and passersby about the sheds and the project in general. He also exhibited photos of sheds that had been built in the Hudson Valley and Philadelphia, along with some of the examples of works that had been made in the sheds. After Citysol, artist Todd Betterley used one shed to produce a sun mural that he painted on one side; during the Film Series, the other shed was moved and used as a concession stand. Another piece of the project is currently on display in Harlem.



**Citysol, Kids of All Ages Day**

Making bike blender smoothies with Band of Bicycles.

photo credit:  
Sarah Pidgeon

## Other Performances

For the first night of Citysol, Solar One commissioned a performance art piece from Tom Murrin, professionally known as the Alien Comic, entitled *A Green Dream*. In it, Mr. Murrin, dressed in an elaborate series of handmade costumes, proceeded to guide the audience through a history of energy and the environment touching on such topics as carbon footprints, greenhouse gasses, water issues, the energetic potential of solar power, recycling, sustainability, green roofs, native plants, Stuyvesant Cove Park, power plants, Monarch butterflies and rainwater collection,

2006



2007



Grants from the City Gardens Club and other foundations enable us to restore areas of the park that had lost plants due to vandalism, lack of water, or inadequate culture requirements. With this funding, we acquired and placed over 1,600 new plants.





culminating in a “Waste-Not” fashion show, all in a 20-minute solo performance. Since his auspicious beginnings as one of the original La Mama ETC playwrights in the late 1960s, Mr. Murrin has created hundreds of topical performances that have been performed in venues throughout the city and the world. His approach is perfect for a sustainability festival, in that throughout his career he has made his costumes and props out of recycled and repurposed materials, sometimes taking them directly out of the trash.

On Sunday, our “Kids of All Ages” Day, the festivities kicked off with an installment of Rachel Trachtenburg’s *Homemade World*, a musical variety show starring 14-year-old musician and performance artist Rachel Trachtenburg. Along with her father, singer-songwriter Jason Trachtenburg, Rachel and a cast of friends and puppets sang songs with subjects such as “Turn Off the Water When You Brush Your Teeth”.

## Workshops

Our Sunday “Kids of All Ages” Day featured workshops from local environmental groups for kids and adults. Kids enjoyed making bicycle-powered smoothies and spin art with Band of Bicycles; they also looked at cells under the microscopes of the Biobus. Adults learned how to make their own alternators with the Madagascar Institute. For the second year in a row, Just Food demonstrated how to can fruits and vegetables.

## Partners

It would be impossible for such a small organization as Solar One to put on a festival of this scale without help—a lot of help. This year, we continued working with some partners from the past, as well as some brand-new organizations. Brooklyn Brewery provided beer sponsorship, not only for Citysol but for all our events in the 2009 summer season, enabling us to sell local beer made with 100% wind power. Community Energy signed up participants for wind power packages from Con Edison Solutions in exchange for beer, a practice that has become a Citysol tradition. We also got support from Green Owl Records, the Architect’s Newspaper and the Energy Collective.

## Solar-Powered Dance Series

The fifth annual Solar-Powered Dance Series was held this season on July 23-25, and July 30-August 1. 14 emerging choreographers performed short works on the Solar 1 stage, the accompanying audio powered by the photovoltaic panels on the Solar 1 roof. The styles represented were the most eclectic and diverse yet, ranging from expressionist modern to hip-hop African to acrobatic circus to mime dance-theater. The mix of artists included mostly local choreographers, some of whom have appeared at previous Dance Series.



### Jamal Jackson Dance Company

“Over the past two years the Jamal Jackson Dance Company has had the pleasure of presenting new works at the Solar Powered Dance Festival. The idea of creating a space that enables the performer to become so intimately connected with the audience is very rare within NYC. Solar One has brilliantly achieved this goal with high-quality works from a wide variety of artists. The level of communication and efficiency of the staff is excellent. The beauty of this event is the organic and natural sense that the dancer feels when performing on this simple stage alongside the East River. This Festival is a true gem.”

— Jamal Jackson, choreographer

photo credit: Eric Bandiero

### The Step It Up National Day of Climate Action

puts together events designed to generate support for legislative action against climate change. Solar One helps to plan the largest of these events in Lower Manhattan, dubbed “Sea of People.”



Sea of People

Solar 2 is named as one of 13 energy initiatives and awarded \$3 million in Mayor Bloomberg’s PlaNYC, the long-term sustainability plan for the city. The building is featured in an article with the sub-headline “Eco-friendly center a city groundbreaker”





Citysol 2009, I Heart PV

Making solar racecars

photo credit:  
Sarah Pidgeon  
/Solar One

## Program A

Program A began with *Surface* by Sara Joel, who performed in the 2008 series with partner Kevin Gibbs. This year, Mrs. Joel, who was 9 months pregnant, performed an amazing solo inside a hanging plastic sphere. She was followed by compatriots in a duet entitled *From Persia with Measured Love* (*Ketab: Yek*), combining Persian and gypsy allusions to create a unique vision of competition and cooperation. Next was Debra Wanner's *Place/Setting*, with a trio that had each dancer balancing 2 dinner plates, one in each hand, as they danced. Jessica Chen presented *Between Them*, a sweet, lyrical duet between two female dancers. Dance/sound design duo Clairaudient performed *One Sided Die*, a solo in which choreographer Danita Shaheen danced while sound designer Dan Abatemarco manipulated sounds that were generated by Ms. Shaheen's movements, picked up with contact mics and Nintendo Wii controllers. The first week's program finished with the Jamal Jackson Dance Company in *Supplant*, a jubilant, propulsive hip-hop/African quartet. After the performance, Mr. Jackson invited the audience to join him onstage for a short African dance workshop, an offer which was enthusiastically accepted.

## Program B

Program B began with Masque Theatre's *Blues, Blues*, an amusing dance-mime duet, performed by choreographer Adelka Polak with maskmaker Larry Hunt, incorporating his large handmade props and masks. Faye Minli Lim presented *Her Scab Like Skin*, the Series' most large-scale work, an expressionistic quintet that had the performers climbing on each other and using their bodies and costumes in dynamic, unexpected ways. Gabriel Forestieri was next, with a solo ironically titled *There Is No Such Thing as a Solo*. The dance was accompanied by sound design by Loren Dempster, who performed live on a conch shell and also created a sound collage from interviews conducted with the Solar One audience and staff. It was a piece notable for the extraordinary physicality of the choreographer-dancer. Sharon Mansur's *here/there...for three* began offstage, with the dancers handing out photographs to audience members, before returning to the stage for a modern dance trio. Catch Me Bird, a Los Angeles-based husband-and-wife choreographic duo performed *Tasting. Slicing. Petals.*, part of their collection of works based on their marriage and relationship. The audience was charmed by their lyrical grace, and the intimate beauty of their artistic partnership. Alexandra Joye Houston returned to the Solar One stage with *Ed-u-ma-cated*, a quartet that was part modern dance, part performance art: as the dancers moved around the stage, the text of the piece took the audience through an alphabet of words related to African-Americans and their relationship to formal education. Kristy Lewis' trio, "37 Loop", was a humorous romp in which three dancers were subject to the whims of a musical loop with a tendency to start and stop without warning. The Series concluded with Julie Troost, yet another returnee from 2008, in a topical solo titled *Resuscitation* dealing with themes of waste, recycling and transformation.



Solar-Powered Dance Series

Surface, Sara Joel

photo credit:  
Eric Bandiero

## Sun To Stars South Asian Festival

Perhaps our most unique and distinctive event, the Sun to Stars South Asian Festival has increased its running time by an hour every year, from a 4-hour event in 2005 to an 8-hour event in 2009.

As in previous years, we recreated the atmosphere of an Indian festival by laying carpets and pillows on the asphalt in front of the Solar 1 stage. The audience lounged on them as they watched the performances. The performers were drawn from a wide range of talented artists in the South Asian community and beyond, including the Parul Shah Dance Company, Carnatic

About 1000 people gather at Solar One to celebrate Loving Day. This especially big event honors the anniversary of Loving v. Virginia, the landmark 1967 case that legalized interracial marriage in the U.S.

Citysol expands beyond the confines of Solar One's location at Stuyvesant Cove Park in an event co-hosted with the River to River Festival. This summer's four-day spectacle draws over 5,000 attendees to enjoy 17 art installations and 12 innovative musical acts..

The New York Times does a feature on Citysol, titled 'Selling a Lofty Concept (Clean Energy) By Appealing to a Basic Desire (Free Beer)'. They refer to our festival as "Live Earth without the hype", a tag line we've been using ever since.



violinist Vivek Rudrapatna, sitar players Indrajit Roy-Chowdhury and Neel Murgai, singers Achyut Joshi and Shobana Rhagavan and dancer Sonali Skandan. In addition, we expanded the scope of the performances to include a flamenco performance from Jaleo Flamenco Dance and Indian-Latin fusion from the Tollywood Allstars. As always, we invited a South Asian food vendor, Long Island City's Five Star Banquet and Catering Hall to provide South Asian delicacies, and also sold Brooklyn Brewery India Pale Ale, wine and soft drinks. Because of hurricane conditions on the original date, Saturday August 22, the festival was postponed until Sunday August 23.

## Solar-Powered Film Series

The 2009 Solar-Powered Film Series continued in the vein of 2008: over two weekends, September 10-12 and September 17-19, we showed six nights of environmental features and short subjects. At every screening, the directors and other experts were invited to take questions from the audience at the end of each screening. We continued our collaboration with social networking group Green Edge Collaborative, who helped host the event, contributed to the curation process, publicized the event to their members and brought many volunteers to help set up chairs and sell organic popcorn, beer, wine and soft drinks. We also continued our partnership with Rooftop Films and the Independent Film Project, as we presented the world premiere of *Burning In the Sun*, a film about solar development in Mali, West Africa. We also showed segments of *From Elegance to Earthworms*, a film exploring different local green businesses, as shorts every evening before the feature.

The series got off to a rollicking start with *Addicted to Plastic*, which examines the unseen consequences of our modern love affair with this almost indestructible material. Many audience members were unaware of phenomena like the Great Pacific Garbage Patch until they saw this film. Afterwards, Michelle Vey, the director of *From Elegance to Earthworms*, and Amanda Gentile, co-founder of the Brooklyn Green Team, spoke to the audience about their work raising eco-consciousness. The next film, *Who Killed the Electric Car?*, dealing with the mysterious disappearance of a popular electric vehicle technology from the 1990s, had to be postponed until



### Sun to Stars

Audience members relax Indian-style on pillows and carpets at our South Asian festival.

photo credit: Marcus Simpson



Les Savy Fav at Citysol 2007

**Green Arts Support Solar One** is invited to present selections from the 2007 Solar-Powered Dance Series at the Lincoln Center Out of Doors Festival,



SPDS at Lincoln Center

## Film: Burning in the Sun

“Solar One was the ideal place to host the world premiere of our film *Burning in the Sun*. On a crisp clear night in September, we reached exactly the target audience this film was meant for. Solar One’s built-in support network turned out in massive numbers and the audience was standing-room only. The buzz in the air and the enthusiasm of the crowd really helped the film gain traction, and immediately afterwards we received several offers for future screenings. The folks at Solar One went above and beyond to embrace us and champion our film; we couldn’t be more grateful and we couldn’t have asked for a more ideal premiere scenario.”

— Cambria Matlow, Co-Director,  
*Burning In The Sun*

Sunday due to uncooperative weather. The first week ended with *Flow: For the Love of Water*, making the case against global water privatization, followed by a Q&A session with John Mundy of the Majora Carter Group, a green economic consulting firm.

Week 2 began with *A Sea Change*, which charted the effects of ocean acidification on the global ecology and food supply. Afterwards, Angela Alston, outreach coordinator for *A Sea Change*, and marine biologist Baerbel Hoenisch took questions from the crowd. The following night, *The Garden* told the story of the South Central Los Angeles community’s struggle and ultimate failure to preserve the 14-acre community garden that was once the largest in the US. Questions from the audience were taken by chef Juventino Avila, the co-owner of Get Fresh Table & Market, and Stacey Murphy of BK Farmyards, Brooklyn’s urban farming network. The Series closed with *Burning In the Sun*, shown in partnership with Rooftop Films and the Independent Film Project. **This screening drew our largest crowds yet: about 500 people attended the screening and quizzed directors Cambria Matlow and Morgan Robimson about the making of the film.**

## What’s On Your Plate?

The final film of the Series, the special presentation of *What’s On Your Plate?*, drew a lively crowd of youngsters and local food enthusiasts. The audience enjoyed both the film and the music performance from the band Saffire, comprised of two sets of pre-teen sisters that proceeded it. The film is now being shown to schoolchildren accompanied by a



### Solar-Powered Film Series

Intern Abeo Miller fills buckets with water to anchor the inflatable screen for the Solar-Powered Film Series.

photo credit:  
Sarah Pidgeon/Solar One

2007

Solar One receives government funding to support the Green Arts program from the New York City Department of Cultural Affairs and the New York State Council on the Arts, enhancing our reputation as a cultural venue.

Solar One Executive Director Chris Collins and the S1 Board and staff are invited to ring the opening bell at the NASDAQ exchange to start the day’s trading. The Solar One logo is displayed on the seven-story NASDAQ tower in Times Square.



Solar One at NASDAQ



food curriculum developed by Solar One educators that introduces youngsters to food and sustainability issues.

Filmed over the course of one year, the film follows two eleven-year-old multi-racial city kids as they explore their place in the food chain. Sadie and Safiyah take a close look at food systems in New York City and its surrounding areas. With the camera as their companion, the girl-guides talk to each other as well as to food activists, farmers, new friends, storekeepers, their families, and the viewer, in their quest to understand what's on all of our plates.

## Our Lady Of Detritus

Along with our annual Dance Series, the Green Energy Arts Festival also provided a venue for the performance of *Our Lady of Detritus*, a collaborative performance project dealing with themes of waste, recycling, what we do with our junk, and how we feel about it. A portable performance installation involving music, movement and visuals performed in a food cart, the piece was both mobile and interactive, as onlookers were encouraged to offer their trash confessions to the Lady, lying on a bier of Cheez Doodles. The sound design by composer Kristin Nordeval was powered by a solar-powered umbrella, developed by Solar One and designed with the help of David Gibbs. Two performances were held in Stuyvesant Cove Park on September 5th and 6th, and one more on September 13th before the screening of *Who Killed the Electric Car?*. Like the screening, the performance was actually held on the rain date, rather than the original Saturday date.



### Our Lady of Detritus

"We've all been saying how lucky we feel to do these first two weekends of *Our Lady of Detritus* at Solar One. You have been such generous hosts and partners in this project - we couldn't have asked for better, and we couldn't have achieved this level of our vision for the piece without you! Many, many thanks!"

—Kristin Norderval

"Working with Solar One was crucial to the development and presentation of our new work, *Our Lady of Detritus*. It was a pleasure to work with Solar One's staff, to perform at a space with shared values and environmental commitments, and to benefit from Solar One's expertise and generosity in helping us design and build the solar umbrella that would power our portable sound system. Solar One really became the launching ground for our production and was critical to allowing us to bring our art to people in its neighborhood and beyond."

— Jill Sigman

photo credit: Jamie Paquette/Solar One

### Solar One Educates

Solar One expands its award-winning K-12 Enrichment Program to reach more students than ever before, providing free environmental science and energy classes to over 4,200 students from 37 different schools throughout the city.



# Outreach & Advocacy

Solar One's Outreach & Advocacy programs aim to engage New Yorkers in the myriad options available to them to increase energy efficiency and raise awareness of renewable energy sources prevalent in New York. The programs are wide-ranging and their approaches varied, from student-led street teams explaining the new Renewable Energy Property Tax Abatement to passersby to our Energy \$mart Communities Coordinator hosting a "Green From the Inside Out" workshop series on greening your multifamily building. Our Outreach and Advocacy programs offer New Yorkers an unprecedented opportunity to take advantage of state-wide incentives for energy improvements, and to articulate a grassroots desire for strong renewable energy policies in New York State.

While our Education and Green Career Job Training programs develop environmental awareness in young people and prepare at-risk youth to meet the challenges of the new green economy, our Outreach and Advocacy programs get New Yorkers involved in the business and policy decisions that will make that green economy a reality. The Outreach and Advocacy program provides New Yorkers with the means to effect change, whether as property owners looking to retrofit their buildings to become more energy efficient, as parents concerned about air and water quality, or as citizens seeking for their opinions on statewide energy policy to be heard in Albany.

2007

## greeninnovator™

Solar One is contracted by the Japan Automobile Manufacturers Association to create a student and teacher resource tool that explores the process of true innovation through sustainable design and manufacturing. Introducing the Green Innovator™!

**In the Park Manager**  
Melissa McDonald leads monthly tours, known as Stuyvesant Strolls, through Stuyvesant Cove Park during the growing season.

Stuyvesant Cove Park volunteers log close to 5,000 hours of work, our highest number ever!

# Outreach & Advocacy

I ♥ PV \* The Green Renter \* Energy \$mart Communities



## I ♥ PV

PV Installation Class, Manhattan Comprehensive High School (MCHS). Students in Chris Neidl's I ♥ PV class work on a solar panel.

photo credit: Pauline Augustine/Solar One



## I ♥ PV Street Team

At the Solar Love Music Festival. The MCHS I ♥ PV street team demonstrates their mobile solar chargers, and explains solar energy to NYC teenagers.

photo credit: Chris Neidl/Solar One



## Green From the Inside Out, Energy \$mart Communities

E\$C Coordinator Diana Pangestu answers questions about NYSERDA programs at an event.

photo credit: Mary Tchamkina/Solar One

**Oyster Garden** Thanks to an initiative organized by NY/NJ Baykeeper, with help from the New York Harbor School and Solar One Educator Sarah Manley, a colony of oysters thrives in the Stuyvesant Cove Estuary.





### I Heart PV, Mobile Solar Charging Stations

Designed by Solar One BFF Elliot Montgomery and built by MCHS IHPV students.

photo credit: Chris Neidl/  
Solar One

## I ♥ PV

In 2008, our new I ♥ PV program played an important role in state legislative successes, addressing the issues of net-metering and a property tax abatement for solar installations in New York City. Building on that success, the program turned its attention to pushing for a new financial incentive program for solar photovoltaics (PV) in New York State through a campaign called the Empire State Solar Initiative (ESSI).

ESSI calls for incentives for PV system owners that would be both long-term and substantial enough to push PV into the mainstream over the next decade. The goals of the program include building up new PV capacity to at least 2000 megawatts over a ten-year period, meeting about 5 percent of our state's maximum electricity demand. At the same time, the ESSI campaign aims to drive down the high cost of PV to a level where solar energy becomes competitive with, or even cheaper than, conventional fossil and nuclear fuels as a source of electricity. This, in turn, would help create tens of thousands of jobs locally by attracting and nurturing new and existing industries, all while reducing greenhouse gases and air pollutants that negatively impact our environment, climate and health.

This year, the focus of the I ♥ PV program remains on promoting legislation at the State level, because government plays an essential role in accelerating the process of PV adoption by actively incentivizing solar investment, and because we want to see New York become a center for solar industry and innovation. Continuing the model from 2008, we worked with 18 students from Manhattan Comprehensive Night & Day High School. The students were given lessons in the science of energy as well as energy policy. The interns also received training in solar installation and learned how to build a solar panel. Armed with this knowledge, they brought our mobile solar chargers out to meet the public and drum up support for solar electricity in New York. At venues like the Greenmarkets in Union Square, Tribeca and Grand Army Plaza, the mobile units proved to have a magnetic quality that drew people toward them and started conversations. The interns learned how to assemble and explain the chargers, giving them the means to steer the conversation in productive directions and allowing people to charge a cell phone or a laptop with the power of the sun. This I ♥ PV "Street Team" also had a presence at many of Solar One's public events throughout the summer, as well as other events around the city.

## Mobile Solar Chargers v 2.0

Designed by engineer and artist Elliott Montgomery, and built with assistance from the I ♥ PV interns among others, our two new mobile solar chargers hit the streets during the spring of 2009. Built to improve upon the original models, the chargers make use of a 40 Watt PV panel mounted on a handtruck and connected through a small inverter and charge controller to a series of two batteries fixed to the handtruck's base. The batteries can be fully charged in a matter of hours by exposing the panel to direct sunlight so they can later be used to provide electricity even in bad weather or at night.

In addition to the public venues and events previously listed, the chargers played a key role in other fun happenings. One such endeavor was the first (to our knowledge) solar-powered radio show in the New York City area. Put together with WFMU DJ Trent Wolbe for his show "Sound and Safe" on Monday nights, the first of these was held in the Solar 1 building. Even after dark, the mobile units provided power for a transmitter and the rest of the DJ setup, letting the

2007



**I ♥ PV Launches** The initial outreach phase of I ♥ PV launches in December with a series of public workshops that aim to engage an active constituency, raise awareness of both PV's urban potential and local policy shortfalls, and build a committed volunteer base.

**Award-Winning** Solar One wraps up 2007 by winning an Environmental Quality Award from the US EPA region 2.



three-hour show go off without a hitch. With this successful trial under our belts, we then provided power for four more shows: another at Solar 1, a show from the Waterpod in West Harlem, a third that featured a mobile unit strapped to a bike traveling through Brooklyn, and a fourth at the Water Taxi Beach in Queens. The mobile units also helped power movie previews, additional arts events and even a press conference with the New York State Department of Labor.

## Party for a Solar-Powered New York

The Parties are new events, started in 2009 as an outgrowth of the I ♥ PV program, and are designed to engage the public in issues critical to deploying solar power around the state. Rather than the standard PowerPoint lecture, these events attempted to draw people in by engaging their social natures. We ended up hosting 3 of these events throughout the year at 2 different venues in Brooklyn: Southpaw in Park Slope and Sycamore in Flatbush. Each event offered drink specials, but more importantly, they offered people the chance to interact with each other and with the members of the campaign. Attendees took part in solar car building contests, group brainstorming on the design of our new mobile solar chargers, and letter writing to elected officials to actively promote long-term solar incentives. In addition, we brought in local solar installers who were on hand to do roof top reviews of buildings using Google Earth, talk to people about the process of putting solar panels on their homes and buildings, and review available incentives that can help make the process more cost effective.

The events were a rousing success, with over 100 people attending each and over 150 letters written in support of the Empire State Solar Initiative. Events such as these will continue to be an element of our advocacy work going forward.

## Empire State Feed-In Tariff

Toward the end of the year, the ESSI began to focus on a new incentive engine named the Empire State Feed-In Tariff (ESFIT—see sidebar). Recent experiences



### I ♥ PV at MCHS

Students working on PV panels as part of the MCHS PV installation class

photo credit:  
Pauline Augustine  
/Solar One



### Party for a Solar-Powered New York

Attendees loved participating in a solar-powered race car competition. Prizes were awarded for the most creative and the most efficient designs.

photo credit:  
Pauline Augustine/Solar One

2008

Solar One budget exceeds \$1 million for the first time.

**Choose GOOD** We host a Farmer's Fair for GOOD magazine to benefit the Union Sq Greenmarket. More than 1000 people from throughout the city attend.



## What is a Feed-In Tariff?

The Feed-In Tariff has 3 core features:

1. Owners of clean power technologies can ‘feed in’ or sell some or all of the power that they produce at a fixed rate to the local utilities for guaranteed periods of 15-25 years.

2. These producers receive a premium for their electricity that is higher than the selling price of conventional fossil fuel and nuclear-generated electricity. This premium is equal to the cost of generating power with each technology, plus a reasonable annual rate of return on investment.

Under this scheme, the tariff for PV is typically 3-4 times higher than that which is offered to producers of dirty, conventional electricity.

3. FITs are not permanent. Instead the tariffs decline over time and are eventually phased out completely. This means that someone who invests in a PV system in 2010 will be able to sell power at a tariff that is higher than someone who makes an investment in subsequent years.

This declining structure is essential because it encourages early adoption and forces PV manufacturers and installers to reduce costs over time.



**Empire State  
Feed-In Tariff**

both internationally and closer to home provide a strong basis for supporting the creation of a FIT for New York. The model has been responsible, most notably, for Germany’s status as the world’s leading renewable energy adopter, as well as for the impressive growth rates that have occurred in other European countries more recently, such as Spain, Italy and France. The FIT model is now beginning to gain momentum on this side of the Atlantic with implementations happening in Ontario, Vermont and Gainesville, Florida. Additionally, no fewer than 14 states, including New York, have introduced legislation in the past year calling for the creation of a state FIT.

New York State’s current incentive program for PV consists of a combination of upfront rebates and tax credits. While the program has offered generous resources for many solar system owners throughout the state, the overall approach has supported only incremental growth in PV adoption. This is because the program’s scope has been mostly limited to small system development (80 kW and under). At the same time, funding for the program has not been committed on a long-term basis. For these reasons, today’s program is incapable of achieving the ESSI’s goals of pushing PV into the mainstream over the next decade, growing local industry within the state, and significantly driving down costs.

In 2009, the New York Renewable Energy Sources Act was introduced as legislation in both chambers of the State Legislature. If made into law, the Act would mandate the creation of a Feed-In Tariff for New York State that would include PV and other clean energy sources. Since the New York Energy Sources Act is a new piece of legislation never before introduced in our state, it faces an uphill battle on its path to becoming a law. For it to move forward it is absolutely critical that citizens throughout the state exert their influence on the process by directly urging their legislators to support the bill with letters, phone calls, visits and other direct forms of communication that send a clear message to the State legislature.

## GNR8R

GNR8R (pronounced “generator”) is a new application currently in development that will empower volunteer activists (called “agents”) to educate and recruit fellow citizens—friends, family, coworkers, even total strangers—to phone their state legislators in support of policies that aim to advance clean energy adoption across the U.S. The project will launch in the spring of 2010 in New York State as part of a legislative campaign to promote ESFIT and the New York Renewable Energy Sources Act. Following the initial launch, the application will be modified and made available for use in clean energy campaigns throughout the country.

2008

Our annual Revelry By the River fundraising gala attracts 400 attendees—the most we’ve ever had!

IBM and the Mayor’s Office of Long-Term Planning & Sustainability are our 2008 honorees.



Manhattan Borough President Scott Stringer at RBTR 08

GNR8R New York enables volunteer activists throughout the state to generate live phone calls from constituents to their elected officials in support of specific pieces of legislation or policies. With GNR8R, activists can easily identify any New York resident's state legislators and connect the former to the latter by simply texting the constituent's phone number and address to the GNR8R database. In return, the constituent receives a text message that includes a listing of their State Senator and Assembly Member by name, district and party, as well as each legislator's direct phone number.

## The Green Renter

Our Green Renter lecture series entered its 4th year in 2009 with no shortage of topics to discuss. Once again, a series of speakers came to Solar 1 to present on areas of their expertise. These ranged from Vertical Axis Wind Turbines to Green Roofs; native New York apples to boating on the East River; and two different presentations dealing with the issue of the potential hydraulic fracturing of the natural gas reserves in the Marcellus Shale upstate. As usual, these events were well attended and the responses were overwhelmingly positive.

Given the growing track record of the program, in the fall of 2009 we began thinking about expanding the format of these events and bringing them to larger venues on a monthly rather than weekly basis. The first such event was held in September at the Steelcase showroom on Columbus Circle, called "Solar Pathways to Empowerment" (see below). We plan to continue with these larger events in 2010 under the name "Solar One Presents" to tackle such topics as Feed-In Tariffs.

## Solar Pathways to Empowerment

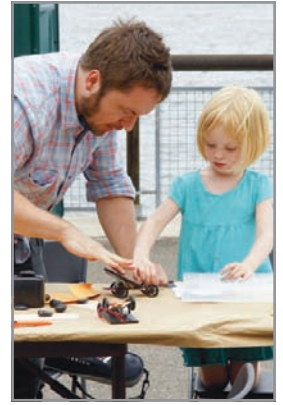
Part of UN Climate Week in September, this panel discussion of international experts was curated and moderated by Chris Neidl, and took place in a space generously donated by Steelcase at their showroom overlooking Columbus Circle. Focusing on emerging trends in solar deployment in the developing world, the event was attended by roughly 200 guests. The panel included Nicola Armacost, founding director of Arc Finance; Asim Buksh, founder of the Buksh Foundation; Max Lacayo Cortes, sales director of Ecami S.A.; and Sarah Butler-Sloss, founder and director of the Ashden Awards. The event was documented and can be watched on our website here: <http://solar1.org/2009/12/11/>

## NYSERDA Energy \$mart Communities

Solar One Energy \$mart Communities (S1 E\$C) is one of ten Energy \$mart Communities Regions in New York State. As the Energy \$mart Communities Contractor for Manhattan and Staten Island, S1 E\$C endeavors to enhance energy efficiency and renewable energy awareness in our region through partnership building, outreach events, and custom projects and initiatives that target specific sectors of the community.

## Partnerships

As of December 2009, during its first year of operation, S1 E\$C forged approximately 700 partnerships with local government entities, non-profits, building owners and managers, energy service companies, professional associations, building trade unions, and community



### I ♥ PV at Citysol

Father & daughter build a solar racecar.

photo credit: Mary Tchamakina/Solar One

**I ♥ PV Victory** I ♥ PV achieves its first goal in Albany: passing a solar property tax abatement law that allows NYC residents to collect the same property tax rebates as their upstate neighbors.

**MAS Award** Solar One is honored with a Certificate of Merit from the Municipal Arts Society. Every year, the Society recognizes individuals, groups and events that make NYC more livable.

**Green Innovator™ Grows** The Green Innovator™ curriculum is taught to 150 educators during 5 training sessions. Motorola Foundation supports the Green Innovator™, funding 4 additional workshops for 100 teachers, all of whom receive copies of the curriculum and a set of materials.





### Green From the Inside Out, Roof Application Presentation

Advocacy Director Chris Neidl discusses energy saving roof applications with building managers and landlords.

photo credit:  
Mary Tchamkina  
/Solar One

organizations. Partnerships were developed to establish a network where local information and resources could be shared. We keep track of these partnerships through a regularly updated database.

## Outreach and Education

Solar One Energy \$mart Communities educates and provides assistance to homeowners, community leaders, business owners, and the general public on energy efficiency and renewable resources using community-based outreach, energy education forums, and one-on-one consulting to energy-related businesses and entrepreneurs. From January – November 2009, S1 E\$C held 681 meetings, or 23% of all meetings held by all Energy \$mart Communities Coordinators across the state. In addition to meetings with businesses and organizations, our outreach numbers were also consistently ranked at the top in relation to other E\$C regions. Of the total outreach performed for New York State under Energy \$mart Communities, S1 E\$C delivered 22% of the outreach events. S1 E\$C participated in 77 outreach events where we had direct contact with 3,946 individuals, or 16% of the 25,439 individuals acquainted with NYSERDA through the Energy \$mart Communities Program. Through our outreach, S1 E\$C matches energy project needs with the available NYSERDA funding opportunities and other economic development resources, including utility incentives, government tax credits and abatements, financing options, and other local resources. We referred 57 projects, or 9% of the total projects referred by Energy \$mart Communities. We also help organizations and businesses build opportunities and create jobs by providing access to job training and recruitment opportunities. Solar One E\$C recruited 89 contractors, or 11% of total contractors recruited into NYSERDA's programs.

## Projects and Initiatives

Energy \$mart Communities creates Energy Target Zones (ETZ's), Anchor Projects, and initiatives for each local region to develop model case studies for the community and to concentrate resources in underserved areas. **Solar One created three Energy Target Zones in conjunction with the Manhattan Borough President's Go Green Committees: the Lower East Side, Washington Heights, and East Harlem.** Projects in the ETZs include a Green Bodega Initiative in East Harlem to increase the availability of fresh food, local produce, and energy efficiency resources in local bodegas, a Small Business Initiative in the Lower East Side to educate small businesses on sustainable measures; and a Green Model Multifamily Building project in Washington Heights to create a building model that could be replicated by other buildings in the area. Other initiatives include the Focus Commercial Real Estate Initiative, where we teamed up with NYSERDA's Focus CRE Team to educate and engage large commercial portfolio owners and managers on NYSERDA programs, benchmarking, and lease analysis; Green from the Inside Out, our travelling workshop series on greening multifamily buildings through recycling, energy efficiency, and rooftop measures; and the LED Holiday Lighting Campaign. Anchor projects for the year include the Solar 2 New Construction Project, a PV Project in Queens, and the Grand Madison Coop. These anchor projects were developed to contribute to the understanding of the logistical process undertaken with energy efficiency projects and their energy benefits to the community.

## Green from the Inside Out

Solar One created the Green from the Inside Out series (originally known as Green From the Ground Up) as a forum to educate the New York City multifamily building population on what steps they could take to enhance the sustainability of their building. This series, funded by a

## 2008

### 3rd Presidential Debate

As a public service to our community, Solar One hosts a free outdoor public screening of the final 2008 Presidential Debate. About 75 people come to experience the culmination of a long, dramatic campaign season.

Solar 2 wins Gold prize from the Holcim Foundation for Sustainable Construction in their North America division. The award, besides being extremely prestigious, includes a cash prize of \$100,000.



grant from the federal Environmental Protection Agency, provides residential property owners and managers in New York City with the knowledge and resources to make their buildings greener and more sustainable. These workshops offer practical demonstrations and advice, including information on relevant products and services as well as government-sponsored incentive programs. Vendors are hand-selected and invited to display their business services and answer technical questions that the audience might have. Solar One conducted four traveling interactive presentations in 2009 in four neighborhoods: Gramercy, the Lower East Side, Washington Heights, and the Upper West Side. The popularity of these workshops grew from 30 attendees in our pilot workshop to 100 attendees in our last workshop over the course of 6 months. The variety of attendees also increased significantly, from individuals simply interested in sustainability topics to building managers and condo/coop shareholders who had authority over their buildings' futures. Much of the growth resulted from better organization, hiring a full-time staff person to carry out the program, and a concentrated outreach strategy. The event drew positive responses from those who attended, citing the workshop's usefulness in providing a good foundation for looking into the next steps forward.

### Growth and Future Directions?

At the end of 2009, S1 E\$C added a new Regional Coordinator, Max Joel, to expand our reach in the Staten Island and residential markets. Max comes from a background in green building project management and hopes that the E\$C program can help catalyze truly sustainable economic development in New York City. In 2010, Max will focus on expanding outreach programs throughout Staten Island and in the residential sector in Manhattan, working with the Staten Island Chamber of Commerce and the Small Business Development Center.



#### Energy \$mart Communities

E\$C Program Assistant Celia Salgado in the audience at an E\$C outreach event.

photo credit:  
Mary Tchamkina  
/Solar One



#### Energy \$mart Communities

Coordinator Diana Pangestu with organic popcorn, doing outreach at the 2009 Solar-Powered Film Series at Solar One.

photo credit:  
Mary Tchamkina/Solar One

NYSEDA, the NY State Energy Research and Development Authority, awards its Energy \$mart Communities contract for Manhattan and Staten Island to Solar One.



Solar One connects with 54 schools, and teaches 5,500 students.

Since the Education program's inception in 2004, Solar One has reached 19,000 students in 85 schools.



Eco-Art at Solar One

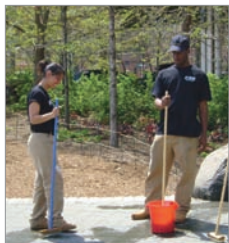
# Special Events Overview

Every year, in addition to our Education, Green Arts and Outreach programs, Solar One hosts special events, some ticketed, some free, in collaboration with a wide variety of partners and groups. These events help us manage the costs of providing free events throughout the rest of the season.

Some of our partners, like Green Drinks, NYC's monthly environmental networking party, and Loving Day, a celebration of interracial relationships in the US, have become annual events held under the large tents we erect on our site every year. Others are one-off events, like Pecha Kucha NY, attracted to our space by our solar power and beautiful outdoor site.

This year's annual fundraising gala, Revelry By the River, was our most star-studded and heavily attended yet. Over 400 people came to Solar One for an urban picnic supper, including former NY governor George Pataki, actors Brooke Shields and Matthew Modine, and singer Cynthia Basinet. The evening turned into a dance party, thanks to DJ Mikey Palms, with social luminaries, green business folk and Solar One staff and interns all tearing it up on the dance floor.

2008



Volunteers in the Park

**In the Park** 680 new plants are added, 500 of which are species new to the Park. 11 student interns are hired, and volunteers work 4500 hours.

# Special Events Programs

**Revelry By The River \* Crawfish Day \* Sustainable NYC Window Display \* Bicycle For A Day \* Green Drinks \* Loving Day \* Solar Love Music Festival \* Rutkowski Trio & Friends \* Earth Days \* Pecha Kucha NY Vol. 7 \* Stuyvesant Cove Park Association Events \* HFA/Mothers & Daughters**



## Revelry By the River

From left: H. Hartley du Pont, Benefit Co-Chair; Michael Hoffman; honoree Kick Kennedy; Jane Steiner Hoffman, Benefit Co-Chair; honoree Matthew Modine; Chris Collins, Solar One Executive Director; Governor George Pataki

photo credit: Patrick McMullan Co.



## Solar Love Music Festival

Local teen rockers Runtime Error play for their peers at the Solar Love Music Festival.

photo credit: Maya Cramer



## Pecha Kucha NY Vol. 7

Pecha Kucha is an international event where designers get to present their design projects using 20-second explanations of 20 slides. Solar One's Chris Neidl and Loving Day's Ken Tanabe both did presentations for an audience of 500.

photo credit: Chris Neidl/Solar One

**Solar 2 Fundraising** A total of \$6.1 million in funding is committed for the Solar 2 project. Along with the \$3 million from the Mayor, we receive support from the City Council, the US Dept of Energy, State Senator Tom Duane and State Assemblyman Brian Kavanagh.

## Water Quality Monitor

Thanks to a grant from the Hudson River Estuary Program, Solar One installs a solar-powered Sonde Water Quality Monitoring Station in the Park, enabling us to expand our Estuary Ecology program.



Students test water quality





### Revelry By the River

Stellar company: Chris Collins with Matthew Modine and Brooke Shields

photo credit:  
Patrick McMullan Co.

## Revelry By The River

The 2009 Revelry By the River Fundraising Gala, held on June 2, was our most star-studded event ever. Every year, Solar One honors environmentally-minded New Yorkers and companies with awards during the gala. In 2009, we chose three honorees for the first time: actor/activist Matthew Modine received our Environmental Stewardship Award for his Bicycle For A Day project that encourages people to improve the environment and their health by biking more. HSBC Bank USA, N.A. was honored with our Sustainability Achievement Award for their commitment to sustainable business practices. Kathleen “Kick” Kennedy received a Young Environmentalist Award for her work on the film *Grand Canyon Adventure* alongside her father, journalist/activist Robert F. Kennedy, Jr. Around 450 socialites, supporters, partners and neighbors gathered under the tents to eat, drink, dance and learn about Solar One and Solar 2, the new net-zero energy building we plan to begin work on in 2010.

Students from MCHS’s I ♥ PV class showed guests how our Mobile Solar Charging stations worked, while some of TruLight’s AAFE students showed off their sustainable products and business plans. Guests could also purchase a solar racecar to take home and assemble, or a Green Innovator™ curriculum to make seed bombs and other sustainable design projects with their kids. While 2009 remained a very difficult year for fundraising, we managed to hold a fun, vibrant, positive event and make friends with a whole different sector of NYC society.

## Sustainable NYC Window

In April, Sustainable NYC, the eco-boutique on Avenue A, asked Solar One to design and install a display for their storefront window to celebrate Earth Day. Volunteers and staff collaborated to create hand-crocheted flowers made out of used plastic shopping bags. The flowers were mounted on 1.5-watt solar PV panels, attached to motors with little spinning rotors, which are usually used to make solar-powered racecars in our Renewable Energy program. When passersby stopped to look at the spinning flowers, they could control the spinning by blocking the panels with their shadow or by covering them with their hands. In this way, the window became an interactive demonstration of photoelectric generation as well as of decorative reuse. The display was only supposed to be up for a few months in the spring, but it was so popular that it stayed up until autumn.



### Sustainable NYC Window

Solar One display window at Sustainable NYC on Ave A

photo credit: Dina Elkan/  
Solar One

## 2008

**Green Jobs Pilot** Solar One launches a pilot program for Green Career Jobs Training. Courses in Building Performance and PV Training, taught in conjunction with CEC, are funded by a Dept of Justice grant secured for us by US Rep. Carolyn Maloney.

**TruLight Mach 2** TruLight Coordinator Kene Turner establishes partnerships with Asian Americans for Equality (AAFE) in Chinatown; YouthBuild, a program of the YMCA, in Flushing, Queens; the ACORN High School in the Bushwick neighborhood of Brooklyn; and MCHS.

## Crawfish NY

For the second year, Solar One hosted a New Orleans crawfish boil for Crawfish NY. The ticketed event was so popular we had to add a second date to meet demand. Almost a ton of live crawfish was sent to NYC from the Big Easy for the Memorial Day weekend, and they were cooked up in huge pots along with potatoes, andouille sausage, onions, lemons and spices. All told, about 350 people enjoyed the feast, with proceeds from the parties donated to the Make It Right Foundation, Brad Pitt's philanthropic project to restore the Lower Ninth Ward in New Orleans.

## Earth Celebrations Hudson River Pageant

On May 9, Solar One participated in Earth Celebrations' Hudson River Pageant, an elaborate art parade along the Hudson River. The parade attempts to engage the city's artists, schoolchildren and residents in a fantastical celebration of the river, while also providing information and drawing attention to New York water issues. Solar One helped organize and sponsor the Boat Dance, a kayak procession created by Alice Farley Dance Theater. At the Pageant, Solar One Arts Director Tamar Rogoff performed part of a River Benediction ceremony. The Pageant was well-attended and received a lot of publicity and press.

## Bicycle For A Day

Bicycle For A Day was founded by Matthew Modine to promote bicycling as a response to those who wanted to protect the environment, improve their personal health, and have fun with friends and family. On June 4, they held a fundraiser to help pay for bike racks, designed by Mr. Modine, for Solar 2. The ticketed event included tasting stations with samples of local snacks and chocolates, a raffle that included a NY-400 bicycle and a Gibson SG guitar, and a live performance by Grammy-winning beatboxer Rahzel.

## Green Drinks

Solar One continued our annual tradition of hosting the June edition of Green Drinks, the green networking cocktail party, on June 9th. This year, vendors from local sustainable businesses had tables with samples of their wares. About 300 people came out to enjoy music, cocktails and conversation by the river.

## Loving Day

On June 7th, Loving Day returned to the Solar One tents for the 3rd year in a row, bringing grilled burgers, veggie dogs and beer along with the message of love for all. Crowds danced all day long to tracks spun by DJ Dhundee and DJ Tyler Askew as couples, families and friends celebrated the 42nd anniversary of the Loving v. Virginia Supreme Court decision that struck down US anti-miscegenation laws.

## Solar Love Music Festival

The future success of the environmental movement depends on the engagement of the younger generation, and that fact was not lost on Solar One intern Corinne Monaco, a senior at the



### Bicycle For A Day

Grammy-winning beatboxer Rahzel performs at the BFAD benefit to raise money for bike racks for Solar 2.

photo credit:  
Dina Elkan/Solar One

2009



The Platt sisters at RBTR

Revelry By the River is 5 years old, and we draw our biggest, most glamorous crowds yet. Almost 500 gathered under the tents, including honorees Matthew Modine, Kick Kennedy & HSBC, as well as Brooke Shields, George Pataki, Betsy Gotbaum and Cynthia Basinet.

**5 Years of Arts** The Solar-Powered Arts Festival celebrates its fifth season, and more choreographers—14!—present their work than ever before.



### Solar Love Music Festival

Poster designed and created by festival organizer and Solar One intern Corinne Monaco.

Institute for Collaborative Education. Inspired by her passion for environmental issues, Corinne decided to hold a solar-powered concert in June 2009 to raise money for Solar One and expose her peers to information on sustainability. She curated the festival herself, asking the bands to donate their talents and recruiting her friends to help with outreach, documentation and publicity. Although the weather on the day of the show was less than cooperative, bands like Starscream, the Whisky Crusaders, the Mighty Handful and the Sediment Club bravely took the stage, while students from the MCHS I ♥ PV class demonstrated solar electricity to a teenage audience from all over the city.

## The Rutkowski Trio & Friends

The Rutkowski Trio returned to Solar One for the fourth straight year on August 7 for another evening performance of jazz standards. About 75 people, mostly local residents, came out on a beautiful Friday night to hear father Joe on keyboards, sons Ben (trombone) and Daniel (trumpet), along with their rhythm section, play jazz standards by Miles Davis, Dexter Gordon, Charlie Parker and Bobby Timmons.

## Earth Days

On August 13, more than 200 people came out for a special pre-premiere screening of Robert Stone's new documentary *Earth Days*, following the history of the modern American environmental movement from its roots in the hippie counterculture to its present place at the center of our national conversation. Using archival footage and interviews with green pioneers like Whole Earth Catalog founder Stewart Brand, biologist and author Paul Erlich and astronaut Rusty Schweickart, the film is a powerful reminder that the environmental movement has been decades in the making, and a celebration of the time before green became a marketing catchphrase.

"I first came to Solar One in 2005 to participate in a water quality lab with my eighth grade class... Four years later in my senior year of high school, I returned to the solar shack on the East River as an intern, unsure of what to expect. Solar One was a whirlwind of activity. Every day there was something new going on, and the people I worked with always made sure I got in on the action..."

I'm not going to lie. Solar One opened up my world in a way most teenagers wish they could experience, and I learned so much from each of the people I was lucky enough to work with there. In the Fall of 2010, I will be heading to Lewis & Clark College in Oregon to pursue a degree in environmental studies. Solar One has given me a head start to that end, equipping me with the ability to think outside of the environmental box and find innovative and creative ways to keep our planet safe. I am eternally grateful to them for setting me on the right path."

— Corinne Monaco, 2009-10 Solar One Education, Arts & Events Intern

## 2009

**Sun To Stars Turns 4** The Sun To Stars South Asian Festival celebrates its fourth year by expanding programming to 8 hours from the original 4. This year, in addition to South Asian music and dance, we also invite a flamenco group to perform, a very popular choice.



Sonali Skandan at S.t.S.

### TruLight Expo

AAFE students present their sustainable business ideas at Sony Wonderlab.

The TruLight program and Solar 2 are also featured on the Sundance Channel's *Traction for Life* series

### Burning In the Sun

In collaboration with Rooftop Films, IFP and Green Edge Collaborative, Solar One hosts the world premiere of *Burning In the Sun*, a documentary about solar development in Mali, for a crowd of over 400 people.



## Pecha Kucha New York Vol. 7

Pecha Kucha Night is a public presentation of designers' work, founded in Tokyo in 2003. Since then, Pecha Kucha nights have been held in cities all over the world. On September 14, Solar One hosted Pecha Kucha New York Vol. 7, attended by 500 people! Outreach & Advocacy Coordinator Chris Neidl was one of 20 designers to present, showing 20 slides about the I ♥ PV campaign and speaking about each slide for 20 seconds (the Pecha Kucha format). The audience was also fascinated by the performance of chiptune artist Nullsleep, who manipulates computer chips to create new sounds.

## Stuyvesant Cove Park Association Events

The Stuyvesant Cove Park Association is a group of local community members who supported the creation of Stuyvesant Cove Park, and who continue to use the park and Solar 1 for events during the summer season. This year, the Park Association held their annual "folk dance" lesson that remained popular as ever. In addition, they programmed several music performances by local acts, including folk blues artist Feral Foster, singer/songwriters Annie Dressner and Paul Sachs, and the Harlem Legends Blues & Jazz Trio. These events have grown in popularity every year, now drawing crowds of about 100 for each performance.

## Habitats for Artists/Mothers & Daughters

At the end of the summer events season, Solar One, EcoArtspace, artist Chere Krakovsky and Habitats for Artists presented a workshop and performance around the take-down of the artist sheds that were up on the blacktop all summer. The sheds had served several purposes during their time at Solar One, not just as art studios but also as shelters during the sometimes rainy season, and as concession stands during the Film Series.

On October 4, Simon Draper, creator of the Habitats, held a workshop for those who were interested in building their own mini-studio, answering questions about salvaged building materials and repurposing artwork. Chere Krakovsky followed with her performance *Mothers & Daughters*, in which she washed her laundry by hand and hung it on a clothesline strung between the Habitats. Once the washing was done, her 86-year-old mother joined her to teach her hand sewing, just as Chere's grandmother had taught her. In this piece, as in many of Krakovsky's performance works, the everyday and the creative co-exist. Guests were invited to participate in the sewing lesson and share in conversation about what has been offered or handed down to them from their mothers. Chere, her mother and grandmother are three generations of artists; the artwork of mother, daughter and grandmother was exhibited inside the shed during the performance. The piece explored the complex issues around domesticity, generational wisdom and the importance of preserving knowledge that has been handed down to us from our ancestors.



### Habitats for Artists

A pint-sized audience member fascinated by Chere Krakovsky's *Mothers & Daughters* performance.

photo credit:  
Dina Elkan/Solar One

### Ogilvy & Mather

Solar One partners with acclaimed advertising agency Ogilvy and Mather to create materials for the Solar 2 capital campaign. They produce a beautiful 2-min video about why the Solar 2 project is important for NYC.

### New Office Space

After a temporary move in 2007, the Solar One staff moves to a gorgeous, light-filled office space on West 26th Street, leaving only the Education and Park departments of Solar One at Stuyvesant Cove during the cold months.

### GCJT Lab Buildout

With the Green Career Job Training Program continuing to grow, Solar One partners with CEC to create a Lab in Long Island City to give trainees hands-on experience before they go out in the field. Solar One may train as many as 1500 GCJT trainees in 2010.

# Solar 2 Overview

Solar 2 will be constructed to achieve LEED Platinum certification and be the first carbon-neutral, net-zero energy use public building in New York City -- and in any major urban center in the country. Employing green building features and holistic engineering practices throughout its award-winning design, the building will be completely powered with a 92.2Kw photovoltaic (PV) cell array of renewable-energy roof systems. With its PV solar-generated energy, multiple geo-exchange wells for heating and cooling, a “green-screen” building envelope of living vegetation, and other ground-breaking advanced energy-efficient engineering and construction technologies, Solar 2 will be a truly unique, public-use building that teaches environmental sustainability from top to bottom, inside and out.

Consisting of an 8,000 square foot interior and a 5,000 square foot exterior space, the building’s goal is to serve as an interactive learning tool, with multimedia educational displays about the advanced green-technology systems of the building, accessible for public viewing in real time, as well as numerous online resources and opportunities for social networking in NYC and beyond.

# Solar 2



## Solar 2

View from 23rd Street facing south.

image credit: Kiss+Cathcart



## Solar 2

South entrance viewed from under the FDR Drive facing north.

image credit: Kiss+Cathcart



## Solar 2

East side of the Solar 2 building viewed from the East River facing west.

image credit: Kiss+Cathcart



## About Solar 2

We made a lot of progress toward the realization of the Solar 2 Green Energy, Arts & Education Center during 2009, from nearing completion on the design process to site investigations to preliminary exhibit design to gaining some important new supporters.

Planned to replace our current 500 ft.<sup>2</sup> facility, Solar 2 will serve as the educational and cultural centerpiece of a five-block public greenway on the East River in Stuyvesant Cove Park, located along two acres of public riverfront on a newly reclaimed, former brownfield in lower Manhattan. Designed as a public-use complex for year-round environmental education exhibits and onsite activities for all ages and backgrounds, Solar 2 will demonstrate energy-efficiency technologies and sustainable environmental practices available now to all urban residents, eco-tourists, teachers, and students alike.

In 2008, the Solar 2 design was selected from more than 1900 entries to receive the prestigious Holcim North American 2008 Gold Award for Sustainable Construction for “innovative, future-oriented and tangible sustainable construction projects.” Solar 2 is also featured as one of thirteen key energy initiatives in New York City’s PlaNYC 2030.

A more detailed overview of building, its systems, spaces and materials, please visit <http://solar1.org/solar2>. There you can also view the fantastic new video for Solar 2 produced for us by renowned advertising firm Ogilvy & Mather.

## Design Progress

During 2009, Solar One worked to complete the design work for Solar 2. An updated Schematic Design was completed early in the year and Design Development finished in July. A Pre-Construction Documents phase was added to the process and we moved from there into the actual Construction Documents phase – typically the last phase before bidding and construction. By the end of the year, we had reached 100% completion of the Engineering design and about 86% completion of the Construction Documents phase from an architectural standpoint.

Along the way, there were a few changes to the design of the building. The PV array was placed on a series of supports and raised 19 feet above the roof to help protect the roof from damage and expand the space available. This allowed for the café to be moved up to the roof, while a small servery remains on the ground floor. Some of the array has also been given over to a solar thermal system that will help meet the building’s hot water needs. An acoustic study of the site provided strategies for reducing ambient noise on the roof which sits close to the level of the FDR Drive. The concept of the Green Theater was fleshed out, as was the use of the Office and “Green Lab” space on the 2nd floor. We also brought in the concept of a Vertically Integrated Greenhouse that we will discuss in further detail below.

## Vertically Integrated Greenhouse

Starting at the street level of Solar 2 and its public park entrances, and reaching to the roof, the Vertically Integrated Greenhouse (VIG) will rise along the side of building. A crucial urban architectural innovation, the VIG is designed to serve as a living testament to the real possibilities of an environmentally sustainable future, now achievable worldwide, in diverse climates and under all conceivable urban conditions. Combining solar-power and other energy-efficient building systems with myriad hydroponic and organic farming techniques, the VIG utilizes the most forward-thinking examples of built environment, carbon-neutral and integrated technology designs. Surrounded by the Solar 2 “green screen” building envelope of landscaped plantings, with multiple interpretive engineering and educational exhibits for interactive learning, the VIG will produce food for public consumption at the solar-powered, rooftop café, facing the East River and surrounding cityscape.

Consisting of a breathtaking, vertical “glass box” design, the VIG systems will be seen from within and without the Solar 2 complex and surrounding park land and riverside, providing

a viable model for producing food in urban areas. Through the use of building integrated agricultural design with energy efficient technologies, re-circulating irrigation and roof rainfall capture, the VIG consumes five to ten times less water than field agriculture while eliminating fertilizer runoff to our rivers and the water table.

The Vertically Integrated Greenhouse offers a demonstrable model, replicable nationwide, for an energy-efficient future that will have a crucial impact on all our lives.

## Energy Modeling

In 2008, Community Environmental Center prepared a energy model of Solar 2 using TREAT, a building modeling software developed by NYSERDA. Although there was no reason to believe this model would give wildly inaccurate results, it was not capable of answering detailed questions regarding the building's functioning and/or allowed for specific energy efficiency measures to be easily evaluated or implemented in the building. In 2009, CEC's energy consulting team elected to use eQUEST v3.63 modeling software developed by the U.S. Department of Energy to provide a more sophisticated and detailed building model construction. Based on this analysis of Solar 2's building model simulation, completed by CEC in August, we have concluded that we can achieve our goal of a net-zero building through the use of high-efficiency solar cells in conjunction with high-performance green design. In addition we will deploy an aggressive plan to monitor and adapt the building's energy use to make sure it adheres to its energy budget.

## Exhibits

As part of the design work for the building, we were able to finish the conceptual design of Solar 2's exhibits working with our partners at Main Street Design and Local Projects. These concepts revolve around several themes such as "Building Identity," "Anatomy of a Green Building," "Crisis and Opportunity," and "An Evolving Response." Mixed in will be numerous "Choice Stations" and "Action Stations" that lend impact to the experience of a visit to Solar 2.

As currently envisioned, Solar 2's interpretive elements will comprise a rich mix of hands-on programs, demonstrations and activities, audiovisual programs and multimedia interactives, changing exhibits and object displays, and interpretive play. The overall tone and character of the exhibits will suggest an active "learning laboratory," rather than a museum, and the majority of the experiences there will be participatory in some form.

## New Partners

NYC Department of Design and Construction – Construction Management: The Department of Design and Construction (DDC) builds many of the civic facilities New Yorkers use every day. As New York City's primary capital construction project manager, DDC provides communities with new or renovated facilities such as firehouses, libraries, police precincts, courthouses and senior centers, including a portfolio valued at over \$6 billion. ([www.nyc.gov/html/ddc/](http://www.nyc.gov/html/ddc/)).

Turner Construction – Pre-construction Consulting (pro bono): Turner is the largest builder of green buildings in the nation. Turner has completed 82 LEED Certified projects and has completed or is currently working on more than 142 additional projects that are registered with the U.S. Green Building Council ([www.turnerconstruction.com](http://www.turnerconstruction.com)).

## Fundraising

In 2009, we were able to meet our 3:1 challenge grant from the LuEsther T. Mertz Charitable Trust with new gifts from the Gund Family Foundation and the Schmidt Family Foundation 11th Hour Fund, to go with a previous gift from the Holcim Foundation. We also continued to receive political support with a \$100,000 capital grant through the efforts of State Senator Thomas Duane.



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