



CREATING A PIPELINE OF GREEN JOBS IN A PHA: HOW TO MAKE AN ENERGY EFFICIENCY EDUCATION PLAN

SOLUTION OVERVIEW

Tampa Housing Authority (THA) joined the Better Buildings Challenge (BBC) in 2013, committing to reducing energy use intensity by 20 percent across its portfolio of 1,400 units by 2023. As part of its BBC commitment, the agency is transforming a post-WWII public housing site into a mixed-use district covering 12 city blocks and more than 1,000 mixed-income residential units in buildings that will be certified LEED Silver or higher. This ambitious redevelopment, known as the Encore project, will be featured as THA's upcoming Showcase Project.

THA has invested in energy efficiency technologies as part of its energy reduction strategy, but the agency identified a need to incorporate resident education and training to reach its energy reduction goals. In late 2014, THA joined the SEED pilot project, a joint initiative of the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Energy (DOE), and the U.S. Department of Education (ED). **SEED**, which stands for **STEM** (Science, Technology, Engineering, and Math), **Energy**, and **Economic Development**, is a cross-agency pilot program that prepares public housing residents for current and future STEM and technical jobs by increasing energy literacy, providing learning opportunities, and connecting residents to training opportunities for careers in the space. The pilot extended to six Public Housing Authorities (PHAs). HUD designed the offering to complement existing federal efforts focused on financing energy retrofits by adding a place-based program that develops human capital to support energy efficiency.

The SEED program's structure has served as a vehicle to foster new relationships and expand existing partnerships with local organizations, which has increased THA's capacity to educate residents on the benefits of reducing energy use. BayCare Health Systems partnered with THA as they moved to increase energy efficiency awareness among residents, donating outlet plug covers to the housing authority. When THA staff distributed the covers to residents, they discussed energy safety and efficiency tips.

In an effort to uniquely shape SEED into a local place-based initiative, THA adopted the name **SEEDS** (STEAM, Energy, and Economic Development Solutions) for a **Sustainable Tampa** as its platform to promote new SEED activities. There was also a conscientious decision to expand STEM to STEAM to include the Arts. To that end, More Health, a local education and training non-profit, also contributed programming to teach families about food science and cooking healthy on a budget. Other THA education partners included Hillsborough County Public Library Services, Straz Performing Arts Center, and Junior Achievement of Tampa Bay. All three of these organizations played a role in providing further enrichment opportunities to THA residents under the STEAM umbrella – from arts enrichment at Opera Tampa to financial literacy courses.

ORGANIZATION TYPE

Public Housing Authority

BARRIER

No coordinated approach to promote energy efficiency education or workforce development

SOLUTION

Creation of new partnerships and leveraging of resources to launch SEEDS for a Sustainable Tampa

OUTCOME

Deeper resident knowledge of energy efficiency, resulting in cost savings and resident placement in green jobs

PROCESS

After communicating internally and with HUD, THA made a 3-year commitment to SEED to further advance its energy efficiency goals. The program is organized around three pillars: energy literacy, STEM education, and job-driven skills training. PHAs have significant freedom to integrate these pillars into new and existing programs to reach their goals. THA identified an internal SEED Administrator to oversee the new initiative.

THA invited members of the community to a kick-off meeting in December 2014 to discuss the strengths of their respective organizations and how they could collaborate effectively to achieve SEED goals. THA examined its existing programs and identified ways that the three pillars of SEED could add value; in addition, the SEED Administrator continued to connect with key external partners to determine how they could best work together and obtain grant funding to make their initiatives possible. During the implementation of *SEEDS for a Sustainable Tampa*, the community was designated a STEM Funders Network site—Tampa Bay STEM Network. Participation in this network led to several beneficial partnerships, including one with the local school district, postsecondary institutions, and informal learning centers.

THA began listing its SEED membership in grant applications to help mobilize partnerships and demonstrate organizational capacity. Since joining SEED, THA has been awarded multiple grants, many of which were tied into its SEED programming. The THA team frequently learned of grant opportunities through SEED, but they also utilized [Grants.gov](https://www.grants.gov). Some of THA's key SEED efforts are listed below, categorized by SEED pillar:

Energy Literacy

Energy literacy is the foundation of THA's motivation to join the SEED program, as it allows the

agency to take advantage of the nexus between energy efficiency technology and behavioral change. PHAs can follow the most stringent green building guidelines, but their level of energy reduction and cost savings will be limited if they do not teach residents how to save energy. Through SEED, all residents received basic energy efficiency training and tips. Some of the youth received deeper training in weatherization and green building techniques through YouthBuild, and adults could learn more through a Sustainability Ambassador program.

THA partnered with the Southwest Florida Water Management District to initiate a community-based social marketing plan to further develop residents' energy knowledge by teaching them to identify barriers to water and energy efficiency in their building and to communicate those barriers with property managers. Establishing a common language allowed property managers and building residents to troubleshoot the sources of inefficiency together, which enhanced THA's ability to monitor energy usage over time through utility benchmarking. For example, if electric bills were unusually high in the summertime for a particular property, building and operations staff could meet with residents to determine if the inefficiency was linked to behavior or to a building condition. It could be that some residents were leaving front doors open while running air conditioning to keep an eye on their children, or it could be that old windows needed to be replaced. These two scenarios require different solutions, and identifying the source of the inefficiency allows THA to address them appropriately.

STEAM Education

THA decided from the start that it would expand STEM to STEAM, which adds art to the curriculum of science, technology, engineering, and math. Inclusion of the arts gives students broader exposure to new topics, relevance, and transference of knowledge into school, the workplace, and the world at large. The SEED Administrator wrote a successful grant to fund a STEAM summer program in 2016. The grant funded several project-based service learning opportunities for THA youth, which were designed to teach them about an environmental topic and then present them with a hands-on opportunity to apply their knowledge and benefit the environment.

- Lowry Park Zoo—Granted free admission to the students, who met with an instructor and several Macaw parrots that taught them the importance of creating a stimulating environment for the birds to ensure proper brain development. Once back at the housing authority, the students assembled bird toys using colorful pieces of wood and rope that were then donated to the zoo. The instructor sent photos back to the housing authority of the Macaws playing with the toys.
- Florida Aquarium—Granted free admission to the students and provided two staff members who brought a live alligator and discussed humans' impact on animals and the importance of animal conservation. Upon returning to their neighborhood, the students spent the afternoon cleaning up litter in an effort to conserve the environment.
- Museum of Science and Industry—Granted discounted admission and gave the students a special lesson on butterflies, plants, and herbs. After the tour, the students planted herbs in the museum garden.

Workforce Development

As part of SEED, all THA residents receive basic energy efficiency training and learn about further training opportunities for STEM careers. In addition, THA was awarded a grant from Johnson Controls to fund the creation of a new Sustainability Ambassadors program. The program's mission is to create organic community-driven social change by training and empowering residents to be energy efficiency experts in their communities. Ten residents from three properties received National Energy Foundation training in the first year; these resident ambassadors will train 10 residents from three additional properties next year and 10 residents in the subsequent year. Ambassadors learn to read and discuss utility bills, troubleshoot basic energy efficiency issues, and conduct energy audits. They are a true resource for residents and a bridge for property managers to further understand the human behavior component of energy use in their buildings.

Ambassadors receive both soft and hard job skills training in energy efficiency through a partnership between Johnson Controls, the U.A. Plumbers & Pipefitters Local Union 123, and Hillsborough Community College. Following their training, ambassadors have the option of enrolling in an apprenticeship program through the union. This pipeline of opportunity is fully funded and provides residents with a career option that has a strong growth trajectory.

OUTREACH

Since joining SEED, THA has reached out to residents in several ways, including:

- Offering energy literacy and safety training during the distribution of free outlet plug covers for residents.
- Marketing YouthBuild to young adult residents, which is a program that incorporates Capital Needs Assessment (CNA) training.
- Coordinating the Sustainability Ambassadors program.
- Inviting environmentally-friendly vendors to THA's Encore property for Earth Day 2016. Residents attended educational presentations, acquired earth-friendly swag, and received a tour of the LEED Silver buildings, chiller plant, and solar arrays.
- Offering ongoing STEAM activities to residents, including field trips, cultural arts, and the use of MyON, a virtual library.

TOOLS AND RESOURCES

The following tools and resources have helped SEED participants implement their SEED programs:

- [STEM Ecosystems Key Resources Page](#)
- [Grants.gov](#)
- [Energy is Everywhere webinar series](#)

OUTCOMES

THA reports outcomes on a quarterly basis in a report to HUD to demonstrate its progress toward fulfilling SEED objectives and leveraging SEED-funded programs to encourage green workforce

development. The outcomes are organized around the three pillars of SEED. Below are some results from the most recent quarterly report:

Energy Literacy

- Distributed 300 energy conservation brochures during the annual Back-to-School Bash.
- Entered energy consumption data into Portfolio Manager to establish a baseline for energy reduction goals and track progress against THA's BBC data commitment.

STEM Education

- Hosted a Summer Enrichment Program for 153 youth that included STEM-focused activities.
- 43 YouthBuild students earned certificates in the Occupational Safety and Health Administration's (OSHA) 10-hour course on job-related health and safety hazards and 'Introduction to Construction' upon completing specific modules.

Workforce Development

- Filled 25 full-time permanent jobs and 24 part-time permanent jobs.
- Trained 19 residents through YouthBuild.
- Employed 29 SEED participants through HUD's Section 3 program.

MEASURING SUCCESS

SEED organizes its success metrics around three pillars: energy literacy, STEM education, and workforce development. On a quarterly basis, SEED participants report their progress on metrics that demonstrate progress in one of the three broader pillars. THA also aims to submit quarterly utility cost savings from energy conservation measures at its SEED sites upon full implementation of the Sustainability Ambassadors program, which will provide benchmarks to show cost savings that occur over the course of the program.

A sampling of the metrics includes:

- Number of participants/attendees in SEED Energy Literacy activities, programs, and events
- Number of new STEM internship opportunities created by SEED
- Number of vacant full-time, permanent jobs filled

In addition to demonstrating the various successes of the SEED program, quarterly reporting is helpful in allowing THA to assess and improve its programs. For example, THA noticed that its energy literacy numbers were lower than its numbers for other pillars and responded by increasing the number of energy literacy opportunities for residents.

