

Energy Saving Behavior Change For The 21st Century

Zachery Ambrose, Allegheny County
Ashley Jones, NORESO
Sally Russell, GreenNurture

ABSTRACT

Allegheny County's Sustainability Office partnered with GreenNurture and NORESO to utilize GreenNurture's Purpose Driven™ online social media application and NORESO's "hands on" Energy Conservation Through Behavior Change® (ECTBC) Program, to change specific employee attitudes and behavior directly related to energy conservation. Just seven months after the program was implemented, Allegheny County saw an improvement of over 20% in energy conserving behaviors.

The behavior change program was designed with the ability to work across a multi-departmental structure and the various generations of staff. This utilized the "hands on" aspect with face-to-face interactions involving green teams, energy workshop displays, and printed materials, along with the online application, which provided action tracking, savings tracking, collaborative forums, and other social media tools including a points and badge system. The virtual platform combined with structured education and peer-to-peer development allowed for the implementation of multi-level engagement program, keeping the initiative effective and created quantifiable energy saving results.

To keep staff engaged and excited about sustainability, it was vital to design a program that educated employees on the importance of their individual actions, and the collective role these play in day-to-day operations. Positively reinforcing employees to make environmentally conscious decisions cultivates a sense of pride in their workplace, and engaged them in reducing the organization's impact. To maintain effective results, the program was sustainably designed with the ability to adapt and shift within a changing environment.

Introduction

AlleghenyGreen: Allegheny County's Sustainability Office

In 2009, Allegheny County created the Sustainability Office and hired its first Sustainability Manager to lead sustainability programming within internal operations, regional organizations, and other municipal government entities. The Sustainability Office proceeded under the campaign of AlleghenyGreen¹ to create a recognizable brand that would be carried through countywide policies, programs, and green projects. The office then developed a strategic plan with three key objectives at its core to help sustainably transform Allegheny County, including: more environmentally conscious building portfolios and assets, shape earth-friendlier core business operations, and galvanize the region with sustainability leadership. Four key performance target goals were then set up to help track the Sustainability Office's progress across a five-year period to be completed by 2015. These metrics include:

¹ For more information regarding Allegheny County's Sustainability Office reference site address <http://alleghenycounty.us/alleghenygreen/index.aspx>

- Achieve a 20% energy usage reduction by 2015
- Achieve a 20% water efficiency increase by 2015
- Achieve a 20% Greenhouse gas emissions reduction by 2015
- Achieve a 5% higher efficiency fleet conversion annually

An emissions and usage baseline was then prepared utilizing 2008 data of all building utilities and County operations. This baseline was created in partnership with the Pittsburgh Climate Initiative (PCI), and was compiled into a second working version of the Pittsburgh Climate Action Plan² Version 2.0, released in 2012. Under the current Administration directed by County Executive Rich Fitzgerald, AlleghenyGreen concentrates on regional leadership efforts and internal practices, specifically the County’s physical plants and assets, business operations, and the critical role staff plays within each of these categories. Behavior change has become a very important part of the collective goal to reduce the County’s ecological footprint, as they currently staff over 6,000 employees across 18 departments. Staff engagement is now viewed as an area achieving significant results in reaching set goals, and an area of vast potential moving forward.

GreenNurture

GreenNurture is a cloud-based software application that emulates social-networking functionality of sites like LinkedIn, but focuses on an organization’s employees and internal sustainability operations. Its Purpose Driven™ Online Social Media application allows organizations to create online user interactions among invited groups – whether specific internal staff of the organization or targeted members of the general public – around sustainability issues within the organization and surrounding community. GreenNurture continues to develop an online social tool that not only helps organizations engage their stakeholders in a conversation around organizational sustainability objectives, but helps educate them and increase awareness of issues, prompts them to take specific, measurable sustainability actions, and tracks these results.

Studies show that engaged employees experience 21% higher productivity, 22% higher profitability, and 65% lower turnover than organizations with disengaged workforces (Sorenson 2013). Further, 66% of CIOs from top-performing organizations see collaboration as key to driving innovation and productivity (IBM 2011). The GreenNurture application is designed to promote full productivity of employees by giving them ready access information and tools they need, and allowing them to communicate across geographical, time, and departmental boundaries.

NORESCO

NORESCO is one of the largest energy service providers in the United States. In 2009, Allegheny County contracted with NORESKO under a Guaranteed Energy Service Agreement (GESA) to perform a number of building audits and associated Energy Conservation Measures (ECMs) that would help improve the efficiency of these buildings. As part of the GESA,

² You may find the Pittsburgh Climate Action Plan on the PCI website at the following address (<http://pittsburghclimate.org/resources/>).

NORESCO's Energy Conservation Through Behavior Change® (ECTBC) program was implemented

The ECTBC program is designed to change the energy behaviors of building occupants through the use of four main components: Human Behavior Energy AuditSM, Awareness-Communication, Sustainable Behavior Change, and Existing Mechanisms. Using these components as guidelines, the ECTBC program was customized to fit the needs and culture of Allegheny County, increasing its efficiency and augmenting the energy savings stream.

Organizational Behavior Change Collaboration

Behavior change and employee engagement have been strategically incorporated within Sustainability Office programming since its 2009 implementation. In order to successfully extend sustainability practice throughout the County's operations it was imperative to develop involvement from staff within each department early on. In 2010 and 2011 the Sustainability Office was fortunate enough to engage in pilot programs with GreenNurture, leading to a full working relationship starting in 2012. GreenNurture provides Allegheny County with their Purpose DrivenTM Online Social Media application (AlleghenyGreen.org) to further engage employees in the Sustainability Office's initiatives. GreenNurture in conjunction with the ECTBC program, allowed for a comprehensive energy conservation strategy with the ability to reach a multitude of County employees and achieve significant changes.

AlleghenyGreen: Departmental Programming

Since Allegheny County's implementation of a Sustainability Office and adoption of a strategic sustainability plan, they have worked to include staff to help further programming reach. This has helped ensure that the Sustainability Office is able to operationalize sustainability within each of Allegheny County's departments. To better include behavior change and staff engagement in the Sustainability Office's efforts, a number of programs have been included, ranging from committee groups, coordinated events, and competitions. These programs were often started separate of GreenNurture and NORESKO. However, as each additional entity joined the Sustainability Office's programming, collaboration between the three made the programs more successful.

Staff involvement began early with the creation of a committee titled the Department Action Team (DAT), informally known as the Allegheny County Green Team. This committee required staff representation from each department to ensure that sustainability had a channel into each sector of operations. Since its incorporation, the committee has aligned itself with the Sustainability Office assisting with the inclusion of initiatives across departments and providing insight for proposed programs. Another program the Allegheny County's Sustainability Office participated, which created vast improvements in behavior change, was the 2012 pilot Green Workplace Challenge (GWC) hosted by Sustainable Pittsburgh³. This regional competition engaged participants in friendly competition as they worked to reduce the environmental impact of their operations, earning points for energy reductions, water reductions, employee engagement, and incorporating other sustainable activities in the workplace. With support from the County Manager, the Sustainability Office committed four buildings of various uses for

³ For more information regarding Sustainable Pittsburgh's Green Workplace Challenge reference site address <http://gwcpgh.org/>

participation. Allegheny County finished the competition as top scorer within the participated Observer category.

To better complement this program and further engage staff in participation, the Allegheny County Sustainability Office organized a smaller building competition between the four committed buildings, to work alongside the 2012 GWC. This would foster more sustainable initiatives to be incorporated into staff daily operations, and produce more energy and water reductions. Employees at each of the buildings eagerly participated to include more sustainable actions in their day-to-day workplace activities, and compete amongst the other buildings. The Sustainability Office worked closely with GreenNurture to combine efforts in engaging employees online as well as in person to create a successful program. Points were reflected by a number of team efforts ranging from energy and water awareness campaigns, classes taken, building certifications achieved, green purchasing, and coordinated events. The amount of recognition and public awareness that was brought to the achievements of our employees also helped with recruitment of Green Champions for the ECTBC program which started a year later.

In 2013 Sustainable Pittsburgh continued the Green Workplace Challenge, incorporating more actions and participant categories. Allegheny County was able to participate in the Municipal category pitted against entities such as the City of Pittsburgh and Cranberry Township. As of January 2014, Allegheny County is again leading its category, gaining points from building efficiency upgrades, employee engagement activities, and many other actions.

In addition to the internal engagement activities, Allegheny County also hosts the Allegheny Green and Innovation Festival every year with 2014 marking its 5th anniversary. This is a community event held at the end of September and showcases over 80 exhibitors from local nonprofits and green businesses, as well as events. Attendees learn how to reduce their carbon footprint and green the Pittsburgh community while enjoying local food, interactive demonstrations, and activities

GreenNurture: Purpose Driven™ Online Social Media – AlleghenyGreen.org

GreenNurture partnered with the Allegheny County Sustainability Office in 2010 and 2011 to run initial test pilot programs, which then progressed into a full working relationship in 2012. They have provided the Sustainability Office with their Purpose Driven™ Online Social Media application, customized specifically for Allegheny County under the site URL AlleghenyGreen.org. This customized site provides the Sustainability Office a digital and low-cost way to rapidly raise awareness about sustainability initiatives through sharing information and content. AlleghenyGreen.org connects staff across 18 departments, empowering them to have a two-way dialogue – improving communication between teams, employees, and managers, bypassing traditional information silos that prevent or slow the dissemination of vital perspective. AlleghenyGreen.org has made training and information sharing an ongoing, collaborative experience by allowing employees to post content – videos, articles, events, County assets up for reuse, and start conversations that focus on sustainability. The Sustainability Office has been able to use information from this content to add to, and amplify important employee initiated programing.

AlleghenyGreen.org has helped the Sustainability Office nudge employees in the direction of long-term behavior change needed to accomplish specific sustainability goals, since its full incorporation in 2012. This is done through contests, goal setting, and tracking actions that help motivate employees to take specific sustainability actions over designated periods of time. Results of contests, goals and actions are also displayed visually in easily understood

graphs and charts so that employees can see their own individual progress, as well as organizational progress, towards goals.

The fundamental modules involved in AlleghenyGreen.org include a Conversation Board, where employees can share ideas, thoughts, events, and even rate one another on likes of a conversation started. The Articles and Video modules, allow staff to post sustainability relevant videos they would like to share or articles they have read, this has also been seen to drive conversation amongst employees within the site. Points and Badges are awarded for all actions taken on AlleghenyGreen.org from logging in, to reading articles and watching videos, to tracking the ECTBC focal behaviors completed on a day-to-day basis. These reinforce behavior change by rewarding specific, measurable actions, and provide incentive for those who enjoy social rewards and recognition by their peers for having attained certain levels of education and/or participation in the Sustainability Office's goals.

The next module was created specifically to interact with the smaller competition the Sustainability Office created to engage staff in Sustainable Pittsburgh's GWC. This application allowed the Sustainability Office to track energy/water usages, and points accrued across the four buildings involved, making them public for all users to see and rate performance. This module had multiple components, including graphs that showcased building energy and water savings day-to-day, and within the month of the competition in comparison to previous years, as well as a visual tracking of points gained by each building, and for which categories. This module proved extremely helpful throughout the GWC and the Sustainability Office's smaller building competition, by making the program transparent, and engaging staff in real time results showing them how their actions were affecting their buildings performance, and the County's participation in the Green Workplace Challenge.

Once the ECTBC program launched within the Sustainability Office it became apparent that all avenues of reaching employees would need to be tapped, and coordinated to achieve the most effective results. With this understood, The Sustainability Office, GreenNurture, and the ECTBC team began developing a few modules that would coordinate with engagement efforts being performed face-to-face on the ground level. The first module created was the Commitment Meter, consisting of a ticking number showcasing each employee that had signed the ECTBC/ Sustainability Office energy conservation commitment. Signing of this commitment started with the Earth Day Energy Workshop activities where attendees were asked to commit to adopting the three ECTBC focal energy conserving behaviors (mentioned below), and engage in other Sustainability Office initiatives. This became a permanent place for employees to sign if they did not attend one of the events, and see all the other staff members who also took the energy conservation commitment. To also coordinate with the focal behaviors an, Actions module was developed for AlleghenyGreen.org, where employees could keep track of the focal behaviors they took on a day-to-day basis, which earned them points and badges for self reporting, and also helped the Sustainability Office and the ECTBC team visualize the impact they were making on employees behavior change. This module again, was very useful in incorporating projects run by the ECTBC team and the Sustainability Office in the AlleghenyGreen.org online platform.

AlleghenyGreen.org provides the Sustainability Office with vital information around both the process and results of collective employee thinking and action, helping them to guide activity towards the achievement of the Office's outlined objectives. Using AlleghenyGreen.org to build awareness, involving employees in the process of change, and soliciting their feedback through flat communication processes, enables the Sustainability Office to encourage employees to take increased ownership for specific results. AlleghenyGreen.org allows the Sustainability Office to

show stakeholders the specific results of initiatives, further increasing buy-in and engagement, and leading to long-term sustainable behavior change.

NORESKO: Energy Conservation Through Behavior Change™

NORESKO's Energy Conservation Through Behavior Change® (ECTBC) program was included as part of the County's Guaranteed Energy Service Agreement (GESA) to tap into the savings potential presented by the County's employees. On average, building occupants control 30% of a building's energy usage (EPA 2013), and with the County employing over 6,000 employees, significant opportunities for behavioral savings beyond building efficiency upgrades was realized. The program was developed as part of Dr. Scott Finlinson's doctoral dissertation and utilizes behavioral psychology tools to create behavior change in building occupants. As mentioned, the program's four components guide the program:

1. Human Behavior Energy AuditSM (HBEA)
 - Talk to People – ECTBC specialists conduct focus groups, which help to better understand an organization's culture and needs to shape energy efficiency programing.
 - Data Collection – Using information gathered from the focus groups, a customized survey is developed and distributed to collect data on levels of energy conservation attitudes, knowledge and behaviors of building occupants.
 - Establish Baseline – By establishing an energy baseline, program effectiveness can be measured, and modified for increased effectiveness when compared to post-program data.
2. Awareness-Communication
 - Increased Buy-In – Existing and future building conservation measures and behavioral efforts are communicated to increase enthusiasm, acceptance, and participation. This is done through a variety of methods, including workshops, posters, presentations, newsletters, a website, and informational material
 - Feedback – Sharing what was learned in the HBEA and from post-program data adds transparency and validity to the program and clarifies the individual's role.
 - Necessary but Insufficient – Past results of other ECTBC programs have shown that Awareness-Communication alone does not produce meaningful or sustained behavior change, education and ownership of the program must also be included.
3. Sustainable Behavior Change
 - Custom Solutions – Collaborative crafting of a meaningful message for each individual program delivers a personalized call to action that resonates and inspires change.
 - Scientifically-Based – ECTBC is a cognitive-social program that employs proven workplace behavior-change tools while integrating innovative technologies.
 - Intrinsically Motivated Change – From the ECTBC program experience, change based on external rewards alone is expensive, unsustainable and yields diminished returns for long-term behavior change results. Finding ways for participants to take ownership of their programs, and connect to the behavior changes on a personal level has shown increased longevity in practicing focused energy conservation behaviors.

4. Existing Mechanisms

Integrates with Current Efforts – Existing efforts provide a starting point that is already recognized and accepted by the population, providing opportunities to advance these program objectives through the integration of the ECTBC initiative.

Broaden and Strengthen Successful Initiatives – The ECTBC team brings additional expertise and resources through a performance contract mechanism to further help organizations adapt successful behavior change around energy efficiency.

Re-Energizes – Sometimes good ideas require a little help. Experience gained from each program helps in adjusting efforts for maximized gain of the organization.

Allegheny County’s Customized ECTBC Program:

HBEA. During the fall of 2012, the ECTBC team conducted its Human Behavior Energy AuditSM (HBEA). Focus groups were held with various County employees so that the ECTBC team and the Allegheny County Sustainability Office could better understand the energy culture and needs. Using information from the focus groups, a pre-program survey was developed to measure energy conservation attitudes, knowledge, behaviors, and other energy-related factors of building occupants. Of the roughly 6,000 Allegheny County employees 1,016 completed the pre-survey, providing a margin of error of +/- 4.97. .

Utilizing information collected from the HBEA, the ECTBC team developed a program specific to Allegheny County’s needs and established an energy conservation baseline to be measured against. Survey data revealed three energy conservation behaviors that would have the greatest impact on Allegheny County’s energy use: Turning off lights, turning off/unplugging devices, and using a community printer instead of a personal printer. Turning off computers was a behavior few employees were found to partake in, it was not a deemed a focal behavior because thin-clients (server hosted computer – no hard drive) were to be installed as part of the GESA, which would allow the computers to be powered down remotely, eliminating the need for employees to do so. The HBEA also indicated that many employees were unaware of sustainability and energy conservation initiatives taking place at Allegheny County. According to the HBEA, 37% of County employees were aware of sustainability initiatives in the workplace. This finding allowed the ECTBC team to also tailor the program to ensure it focused on raising awareness of Allegheny County sustainability efforts.

Awareness-communication. The Awareness-Communication aspect of the program was very robust, as its goal was not only to communicate the GESA, but to also raise awareness of the Sustainability Office and its initiatives. To umbrella the ECTBC program and existing County sustainability initiatives, the existing brand “AlleghenyGreen” became the representational heading of the ECTBC program, and all other projects of the Sustainability Office. Elements to assist in awareness and communication included focal behavior posters and literature, ECM posters, a website dedicated to the program, branded compostable pens printed with the web address, and coloring books distributed to children at public events. To further raise awareness of AlleghenyGreen and employee impact on energy use, roving workshops and presentations were held around the County, where employees could learn about the focal behaviors and commit to adopting them. Green Nurture’s AlleghenyGreen.org was heavily incorporated to allow employees to connect and share sustainability related news and information, as well as track their own behaviors and compare them to fellow employees.

Sustainable behavior change. To integrate the program into Allegheny County's culture, a top-down, bottom-up approach was utilized. Initially, the program was presented to department directors and deputy directors with support from the County Executive and County Managers. This was able to illustrate a commitment to conservation from the County's top management teams. Next, the program was carried into each department by employees who volunteered as our designated Green Champions. Green Champions acted as change agents, and were self-selected employees who were passionate about sustainability and willing to promote AlleghenyGreen within their offices. Seventy-seven employees volunteered to be Green Champions, and were trained using seven behavior change tools: Knowledge, Commitment, Model, Persuade, Prompt, Culture Shift, and Feedback. They were informed of the ECMs being installed in their respective buildings, the ECTBC program's three focal behaviors, and AlleghenyGreen.org. Green Champions learned how to motivate employees through positive reinforcement to adopt energy conserving behaviors, and were tasked with promoting energy conservation efforts in their respective departments. Along with continual support from the ECTBC team and Sustainability Office they were also provided a series of tools and materials, including posters, table tents, display boards, pens, energy conservation displays, and AlleghenyGreen.org to assist them in this effort. These tools and resources, in conjunction with guidance from the ECTBC team and the Sustainability Office provided Green Champions with the means necessary to create change within their departments.

Existing mechanisms. Allegheny County, as mentioned, already had several projects in place when the ECTBC program was implemented. By leveraging these projects, such as the Green Teams and the Green Workplace Challenge participation, the ECTBC program was easily integrated into current operations. Together, the ECTBC program, the Sustainability Office and AlleghenyGreen.org created a comprehensive energy conservation strategy that would be effective in the variety of departments and diverse employee groups present in the County.

With a newly trained cohort of Green Champions, the Sustainability Office now had additional opportunities to promote energy conservation throughout each department. The ECTBC team and the Sustainability Office collaborated with Green Champions to conduct energy workshops and encourage employees to adopt the three focal behaviors. This began with a cooperative hosting of twelve roving workshops throughout the County during the week prior to and following Earth Day (April 22). Employees attended the workshops to learn about the ECTBC program, AlleghenyGreen.org, and how to adopt energy conservation behaviors at work and home through interactive displays and educational materials. Three hundred sixteen employees also pledged to adopt the three focal behaviors by signing a paper leaf displayed on a tree inside their respective office buildings for the remainder of the year. The workshops drew hundreds of employees (surpassing the 316 who signed the commitment) and positive responses, and became an effective education and awareness tool. Throughout the program a running total of employees who signed the commitment after the initial workshops were tracked on AlleghenyGreen.org's energy commitment meter, to showcase staff who had signed.

After the initial training of the Green Champions, bi-monthly meetings were incorporated into the program structure to give employees objectives, and keep them excited and engaged in their efforts. Each meeting also facilitated discussion around each building's needs and how the ECTBC program may be adjusted to meet these specific needs. To accomplish this, the Sustainability Office and the ECTBC team set up 6 meetings at each of the primary building areas to engage with the Green Champions. The first meeting after the training was in May and

provided an opportunity to check in with green champions regarding their progress thus far and inform them of upcoming events. Champions were thanked for their work with the numerous roving Earth Day workshops, and ask for their help in promoting the upcoming post-survey.

July Green Champion meetings were focused on promoting the post-survey (to be conducted in August), encouraging Green Champions to participate in the upcoming fourth annual Allegheny Green & Innovation Festival that the Sustainability Office and County Special Events coordinates, and scheduling energy demonstrations at each facility. Champions agreed to distribute materials regarding the post-survey and encourage colleagues to participate. Interactive light and device demonstrations were also scheduled for champions to conduct for the numerous employees within their buildings

The post-survey was developed and distributed in August as well to all Allegheny County employees. The post-survey allowed the program's effectiveness to be analyzed by comparing its results to the baseline established by the pre-survey. To incentivize the employees to complete the survey, four twenty-five dollar gift cards were offered, as well as a grand prize of an Apple Ipad Mini. The drawn employee was presented with the prize at a celebration held by the Green Champions and Sustainability Office.

During the September Green Champion meetings, close-out of the post-survey, the upcoming Allegheny Green and Innovation Festival, upcoming participation for the coordinated County owned brownfield clean-up, and again encouragement of Green Champions to conduct energy demonstrations were discussed. In honor of the Green Champions an appreciation potluck for them and their families was also thrown. This was to show appreciation for the great work of the Green Champions, and acknowledge all of their accomplishments thus far. The ECTBC team and Allegheny County Sustainability Office also gave out an Allegheny County Green Champion T-shirt as a token of appreciation to each participating staff member.

September 28th, The Allegheny County Green & Innovation Festival was held, making it the perfect forum to bring the County's sustainability efforts and Green Champions to the community. Champions volunteered their time to staff the Green Champion booth and educate the community on energy conservation. The booth included interactive displays and energy efficiency rebates for the adults, custom Allegheny County coloring books and soy crayons for children, and the opportunity for all to pledge to adopt energy conservation behaviors by signing a leaf to be displayed on a tree at the festival. The event was well attended, and many who stopped by the booth were excited to hear of the County's efforts and learn how they could make their homes more energy efficient. December's Green Champion meetings were utilized to present the final program results, thank the champions for a job well done, and receive feedback for next year's phase of the program. Green Champions were newly energized by the change they helped create and excited to continue the program in the new year.

Results

In July 2013, the ECTBC post-program survey was distributed to employees. Of the roughly 6,000 employees 1,551 participated, providing a margin of error of +/-4.13. Data from the post-survey were compared to those of the pre-survey to provide results of the program. The program yielded better than expected results, with employees improving drastically in the three focal behavior areas with an average of almost 22%, and desirable movement in almost every measured behavior with an average increase of 12%. Figure 1.0 illustrates the desired percentage changes of the focal behaviors (turning off lights, turning off and unplugging electrical devices

when finished, and switching to a community printer) as well as an excerpt of a couple other behaviors questioned from the post-survey.

Similar to the pre-survey, additional attitudes, awareness, knowledge and behaviors of County employees were also assessed with respect to energy conservation within the post-survey. These desired percentages were encouraging as a few of the questions and percentage changes are illustrated in figure 2.0. Knowledge of energy conservation facts is essential for employees to understand what actions save energy, as there are many misconceptions surrounding energy conservation. These notions ranged from questions about power strip use and vampire energy, to utilizing fans to help cool vacant rooms. The pre-survey indicated that many employees did not possess the knowledge that would allow them to make the right energy conservation choices. While the programs were able to improve overall knowledge by an average of 11%, there remains room for significant improvement

Tell us about these behaviors at work.	Pre-Survey % Desired	Post-Survey % Desired	% Change
When I leave my workspace, I turn off fan/AC	77.3%	73.2%	-5.3
*When I leave an unoccupied Workspace, I turn off lights	74.5%	79.3%	+6.4
When I'm finished using printer/speakers, I turn them off	54.5%	61.6%	+12.9
When I'm finished using computer, I turn it off	53.8%	61.3%	+13.9
I turn off water faucet when I'm finished	99.1%	99.3%	+0.3
*How often do you utilize the community or shared printer?	67.5%	81.1%	+20.1
*I turn off a power strip with devices when not in use	15%	21%	+38.3

Figure 1. Excerpt of post-survey behavior results including percentage change from pre-survey.

Did you know...	Pre-Survey % Desired	Post-Survey % Desired	% Change
Screen savers use more energy, not save it?	38.6%	52.0%	+34.6
Electronics consume energy while plugged in, even when not in use?	90.5%	93.4%	+3.3
It takes more energy to leave the lights on, rather than turn them off, even for a short time?	81.4%	78.8%	-3.2
Leaving a fan on in an unoccupied room does not make the room cooler because the fan just recirculates the same air?	66.5%	69.9%	+5.0
On average, a vehicle left idling for two minutes could have used that wasted fuel to drive one mile?	53.9%	61.4%	+14.0
Over 80% of waste stream is recyclable?	44.5%	54.7%	+22.8

Please indicate your level of agreement with each of the following statements.	Pre-Survey % Desired	Post-Survey % Desired	% Change
Energy Conservation is important here at Allegheny County.	70.6%	78.9%	+11.8
Allegheny County should conserve energy.	95.9%	96.2%	+0.3
I should help Allegheny County conserve energy	92.8%	94.6%	+2.0

Figure 2.0 Excerpt of post-survey knowledge results including percentage change from pre-survey

Sustainability at Allegheny County.	Pre-Survey % Desired	Post-Survey % Desired	% Change
Are you aware of a “green” or sustainability group or initiative at work?	47.7%	56.8%	+19.0

Figure 3.0 post-survey awareness results including percentage change from pre-survey

Attitudes of County employees regarding energy conservation at Allegheny County also set a foundation for their actions at work, making attitudes an important piece of an energy conservation strategy. Prior to the collaboration between the ECTBC program, Sustainability Office, and GreenNurture, attitudes were fairly positive overall however, the combined programs were able to improve employee attitudes towards sustainability even further.

Efforts of all three entities focused on educating employees about sustainability and involving them in overall efforts of the County. Awareness of sustainability and energy efficiency initiatives enables employees to understand the County’s commitment to sustainability, and further motivates them to participate in such initiatives. As mentioned, awareness had room for improvement before the ECTBC program implementation at 37%. However referencing figure 3.0, the post-program assessment showed awareness of sustainability and energy conservation programs increase by 19%.

As the Sustainability Office had a number of programs focused on employee engagement, the incorporation of GreenNurture, following with the ECTBC team allowed for loopholes in current programing to be filled. One aspect acknowledged while utilizing GreenNurture’s online social media application was that a strong face-to-face connection and programing was needed to get staff more involved, and excited about participating in the online platform. As seen below, figure 4.0 is a participation chart pulled from the back end software support system of GreenNurture and shows activity before and during the ECTBC program. Thoroughly observing the chart and paying close attention to the increase in the y-axis scale, it is apparent that participation jumped dramatically in all fields ranging from logging-in to posting comments, and was more regular as more effort was made on the ground level through the ECTBC and Sustainability Office initiatives. Conversely, The AlleghenyGreen.org online application also helped the ECTBC and Sustainability Office’s awareness and engagement activities by developing modules that allowed programing to remain more transparent to

employees, and add an additional outlet to reach staff diversely spread throughout 18 operational departments. AlleghenyGreen.org allowed those employees who could not make it to certain events or would rather participate on a virtual platform, engage with the Sustainability Office and other coworkers to work towards common sustainability goals.

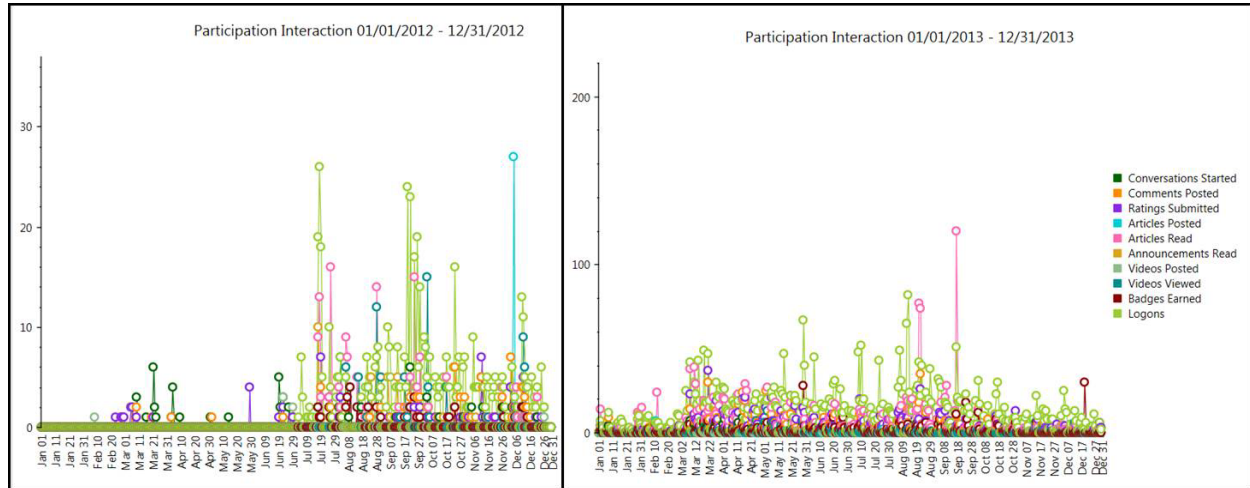


Figure 4.0 AlleghenyGreen.org participation before and after ECTBC program involvement.

Behavior change was the ultimate goal of the ECTBC, Sustainability Office, and GreenNurture programs, and successes in other areas such as attitudes and knowledge also promotes desirable behavior change. Through the resources and guidance provided by ECTBC, Allegheny County’s Sustainability Office, and GreenNurture, Green Champions were able to promote energy conservation within their respective departments and help increase sustainability awareness across the County. In the past, there had been various efforts implemented throughout the years, however the incorporation of the ECTBC team completed the Sustainability Office’s employee engagement efforts by helping guide and coordinate all the initiatives, making 2013 the most successful year in engaging staff yet. Each entity brought with it specific strengths that complemented each other to create a robust and holistic energy conservation program.

Conclusion

The joining of hands-on and online employee engagement programming, orchestrated by an active and involved Sustainability Office had a strong hand to play in the results seen in employee involvement and behavior change. These findings and responses from employees were attributed to eight months of intense program collaboration and implementation. Results witnessed in employee surveys, online discussions, and observable changes, would not have been as successful without the novel combination of the three entities, NORESO’s Energy Conservation Through Behavior Change® (ECTBC) program, GreenNurture’s Purpose Driven™ online social media application, or Allegheny County’s Sustainability Office. Each brought with them specific behavior change initiatives and expertise that culminated into a multi-level engagement package with incredible quantifiable results.

References

- EPA. 2013. *8 Great Strategies to Engage Tenants on Energy Efficiency*.
<http://www.energystar.gov/buildings/sites/default/uploads/tools/8-Great-Strategies-to-Engage-Tenants.pdf>.
- Finlinson, S. 2004. *Increasing Organizational Energy Conservation Behaviors: Comparing the Theory of Planned Behavior and Reasons Theory for Identifying Specific Motivational Factors to Target for Change*. PhD Dissertation, Ohio University of Arts and Sciences.
- IBM. 2013. *The Essential CIO: Insights from the Global Chief Information Officer Study Executive Summary*.
<http://public.dhe.ibm.com/common/ssi/ecm/en/cie03073usen/CIE03073USEN.PDF>.
- Sorensen, S. 2013. *How Employee Engagement Drives Growth*. Gallup Business Journal.
<http://businessjournal.gallup.com/content/163130/employee-engagement-drives-growth.aspx>.