



**Empower**  
**CHATTANOOGA**

**contact information**

green|spaces

Advancing the sustainability of living, working, and building in Chattanooga.

63 E Main St.  
Chattanooga, TN 37405  
p: 423.648.0963  
w: [www.greenspaceschattanooga.org](http://www.greenspaceschattanooga.org)  
t: @greenspacescha

**program director**

Michael Walton, AIA, NCARB, LEED AP BD+C  
Executive Director  
[michael@greenspaceschattanooga.org](mailto:michael@greenspaceschattanooga.org)

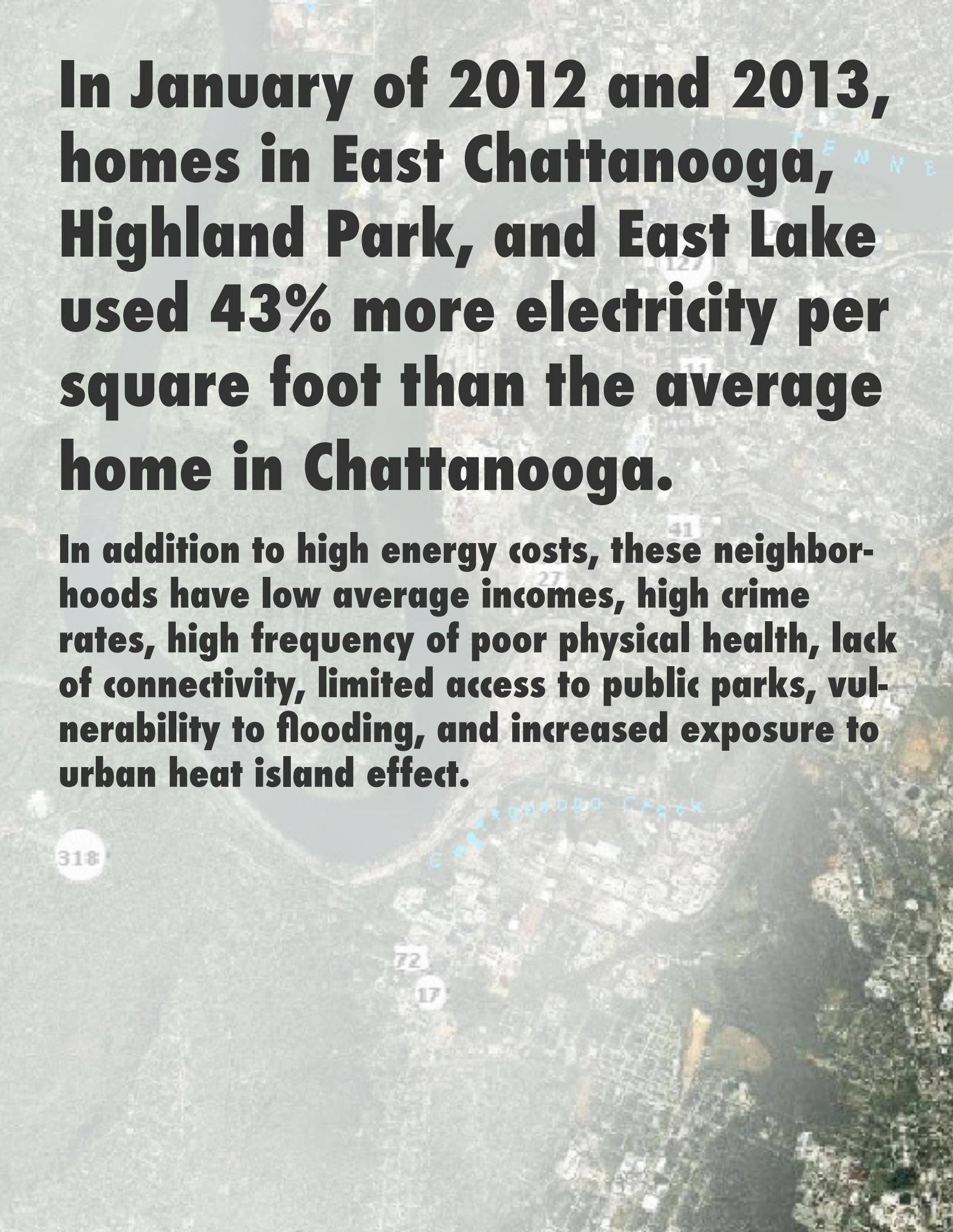
**core program team**

green|spaces  
Electric Power Board (EPB)  
City of Chattanooga  
Chattanooga Gas (AGL Resources)  
University of Tennessee at Chattanooga  
United Way of Greater Chattanooga

**program partners**

Benwood Foundation	La Paz
Boys & Girls Club	Legal Aid
CARTA	Lyndhurst Foundation
Catholic Charities of Chattanooga	Mark Making
Causeway	Metropolitan Ministries
CCHDO	Ochs Center
Chattanooga Neighborhood Enterprise	Partnership for Families, Children & Adults
Company Lab	River City Company
Consumer Credit Counseling	Salvation Army
Family Promise	Schneider Electric
Footprint Foundation	Trust for Public Land
Girls Inc	Urban League of Chattanooga
Glass House Collective	Volunteers in Medicine
Habitat for Humanity	WAP Sustainability

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An aerial photograph of an urban area, likely Chattanooga, Tennessee, showing a grid of streets and buildings. The text is overlaid on the top half of the image. Street names like 'T S N E' and 'Chattanooga Creek' are visible in blue. Street numbers like '127', '41', '27', '72', '17', and '318' are also visible in white.

**In January of 2012 and 2013, homes in East Chattanooga, Highland Park, and East Lake used 43% more electricity per square foot than the average home in Chattanooga.**

**In addition to high energy costs, these neighborhoods have low average incomes, high crime rates, high frequency of poor physical health, lack of connectivity, limited access to public parks, vulnerability to flooding, and increased exposure to urban heat island effect.**



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17

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17

Empower Chattanooga is more than an energy efficiency program. It is a new approach to considering and coordinating the delivery of a range of services based on grassroots feedback, real-time geospatial analysis, and the ongoing coordination of public and private resources. While this approach is a direct descendant of the “Chattanooga Way,” a coined term for our city’s history of resolve and response to environmental, social, and economic challenges, we will present this plan in such a way that a community of any size can easily adapt it to their local needs.

## The Plan

Chattanooga, Tennessee is an emblematic mid-sized southern city that faces many of the same cultural, economic, and environmental challenges with regard to energy efficiency programs as other mid-sized American cities. Having been named the “dirtiest city in America” in 1969, the city government worked with local businesses, institutions, and communities to turn the city around through a series of coordinated, targeted programs that focused on protecting the environment while spurring sustainable redevelopment. Because of this experience, Chattanooga stands out as a reliable proving ground for innovative approaches that have been developed and implemented locally and then exported to other mid-sized and even large cities in the United States and abroad. One example of this is the smart grid with a fiber optic backbone that the local electric utility, EPB, developed with the assistance of the American Recovery and Reinvestment Act. After Chattanooga pioneered this approach and shown both direct and indirect economic benefit, other cities are exploring investing in similar smart grid and communications infrastructure.

While the Georgetown University Energy Prize is focused exclusively on the development of plans that address energy efficiency, Empower Chattanooga posits that no energy program will be as successful as we need it to be if it focuses narrowly on its own ends. Rather, we see energy use as a systemic challenge to quality of life and environmental, social, and economic sustainability. Furthermore, the neighborhoods that are most at risk to rising energy prices are also most at risk environmentally, socially, and economically. Because of the low average quality of their housing, and their high rate of energy use, we find that they also bear a disproportionately higher burden of the fixed cost of utility provision. We therefore need a systemic approach to addressing energy use within the broader context of life within a neighborhood.

# Step One Identify the Focus Area

As part of our approach to the challenge presented by the Georgetown University Energy Prize, we went about seeking the most disadvantaged neighborhoods across a range of spectrums in which we would find a high-density of at-risk homes including both owner-occupied and rental housing.

First, Chattanooga's Electric Power Board (EPB) analyzed electric energy use intensity in zones of one square mile. The electric energy usage per square foot is calculated for a home and then the average is calculated for the homes in a given square mile. The result is a heat map of electric energy usage per square foot. Using this analysis, you can begin to see zones of the city that are using an exceptionally large amount of energy per square foot. Neighborhoods that have an abundance of aging houses with poor insulation and in which we frequently find all-resistance electric heat show up as bright red in the winter.

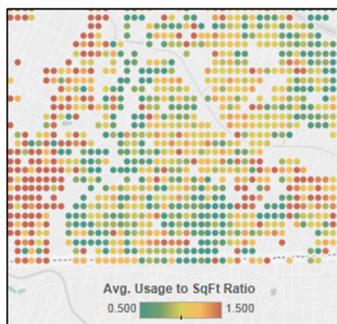


Figure 1: Example of EUI analysis; EPB

We paired these EUI maps with maps developed by the United Way of Greater Chattanooga for our analysis including one that clusters and locates instances of calls to their help line for assistance to pay utility bills (Figure 3).

We also used maps developed by the Trust for Public Land in Chattanooga that highlight opportunities to improve park equity (the existence of a park within a 10 minute walk) connectivity, heat island effect, flood vulnerability, and health/fitness.

Finally, we invited a consortium of the following government agencies, community organizations, and other nonprofits to get feedback on our initial analysis and collect information about the geographic areas in which their programs are focusing:

- |                                     |                                             |
|-------------------------------------|---------------------------------------------|
| Benwood Foundation                  | Habitat for Humanity                        |
| Boys & Girls Club                   | La Paz                                      |
| CARTA                               | Legal Aid                                   |
| Catholic Charities of Chattanooga   | Lyndhurst Foundation                        |
| Causeway                            | Mark Making                                 |
| CCHDO                               | Metropolitan Ministries                     |
| Chattanooga Neighborhood Enterprise | Partnership for Families, Children & Adults |
| Consumer Credit Counseling          | Salvation Army                              |
| Family Promise                      | Trust for Public Land                       |
| Footprint Foundation                | United Way                                  |
| Girls Inc                           | Urban League of Chattanooga                 |
| Glass House Collective              | Volunteers in Medicine                      |

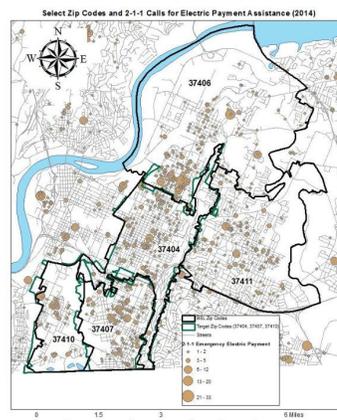
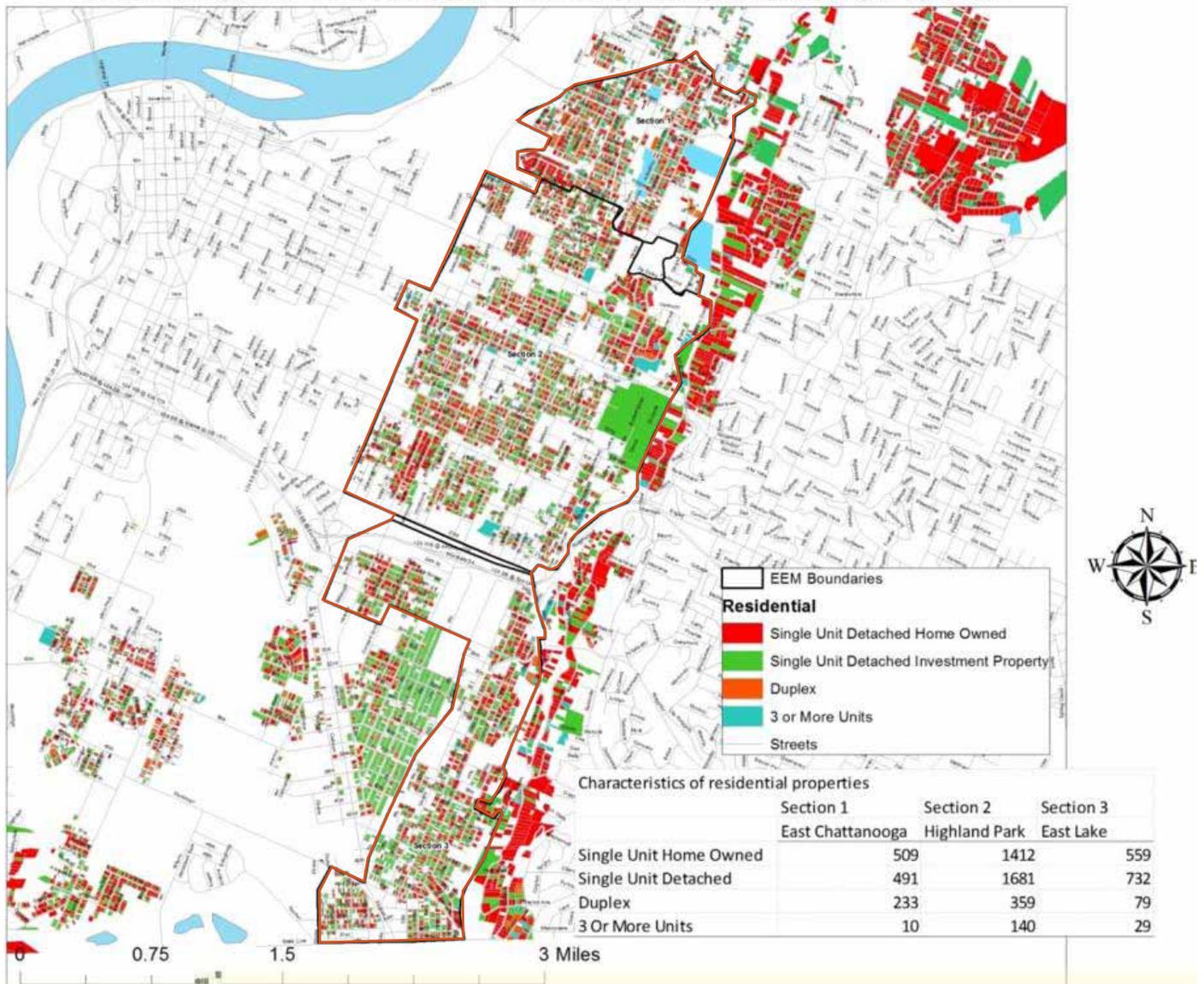


Figure 3: 211 hotline calls for utility assistance; United Way

From this analysis we selected a well-defined geographic area covering three neighborhoods in Chattanooga that represent not only the highest rate of energy use per square foot, but also the most disadvantaged neighborhoods across the range of issues that we identified with the assistance of the program partners.

## Extreme Energy Makeover: Residential Parcels and Unused Land in Target Zip Codes



Sources: ESRI census formatted boundaries and Hamilton County GIS property parcel and street files. Note: Categories for residential properties are based on the selection of units based on land use codes, street addresses and mailing addresses, all fields in the property parcel database. The assumption is that if the land use code is a single unit detached residence and a mailing address equals the physical address of a parcel, then that property is home owner occupied.

Figure 4: Empower Chattanooga and Extreme Energy Makeover Target Area Geographic Boundaries Map; United Way



After we focus on the target area for two years, we plan to evaluate the effectiveness of our programs and our methodology for selecting the initial target area, and then apply those lessons in identifying the next target neighborhoods.

Other communities should work closely with their local utilities, identify other sources of data for the environmental, social, and economic challenges in their community, and then work to connect with the organizations that are providing services within those neighborhoods.

## Step Two Listen

The Ochs Center for Metropolitan Studies, based in Chattanooga, conducted an independent analysis of our target area using focus groups, surveys and analysis of previous community studies with the assistance of the City of Chattanooga's Department of Economic and Community Development and our network of agencies, organizations, and institutions. Their initial report has provided our planning team important feedback about the relevance of energy efficiency in relation to the challenges to quality of life that residents face within these neighborhoods.

The Ochs Center stressed the need for the planning and implementation teams for Empower Chattanooga to establish and maintain a high-level of knowledge regarding the communities' characteristics and unique qualities. In addition to the importance of a nuanced understanding of the communities' energy consumption-related behaviors, opportunities, and barriers, it is important that our team understand the diverse cultures and perspectives within the communities, as this understanding is necessary to stimulate sustainable change. The Empower Chattanooga team will facilitate ongoing, real-time information gathering on community priorities and initiative challenges and maintain the feedback loop through collaboration and partnership with community leadership and stakeholders.

The feedback from focus groups also highlighted challenges to the communication channels that our team faces. Limited access to email, ineffectiveness of direct mailing, lack of trust in institutions outside the neighborhood and other challenges will exist in our target neighborhoods. The focus groups recommended peer-to-peer communication through storytelling as well as building an advisory board for the initiative comprised of leaders from the community and representatives from trusted organizations. Our marketing plan therefore will build on initial successes to accelerate the momentum of the program.

The Ochs Center also placed their initial report in the context of several other related reports that explore issues within our target neighborhoods and which will inform both the substance and communication of our programs.

The feedback from this process has been an invaluable asset to our team in considering the perspectives, values, and challenges that exist in our target neighborhoods. We would highly recommend that other communities begin with a similar analysis.

## Step Three Coordinate

After we selected our target area we reassembled the project team to identify which organizations had active programs in the target area and discussed how these programs could be better leveraged and how energy efficiency among other sustainability issues factored into challenges that their programs faced.

As an example, United Way of Chattanooga and Metropolitan Ministries assist low-income residents who cannot afford to pay their bills. When a resident calls United Way's 211 hot line and is having trouble paying their utility bill, in addition to receiving assistance, they will be given the opportunity to participate in Empower Chattanooga. EPB will provide them with a free energy audit, green|spaces will provide educational material about simple steps to save energy, and if they are in our target area, they will be encouraged to apply to our Extreme Energy Makeover, a potential grant that we have requested from the Tennessee Valley Authority. If their inability to afford their energy bills stems from additional issues, they can be enrolled in United Way's Building Stable Lives program that helps with budgeting, financial planning, and employment services.

Another examples is a program provided by Catholic Charities in our target area called SMART (Sound Money and Rental Tools) which teaches potential tenants, budgeting, saving, credit management, and good neighbor skills and then helps tenants with placement in quality, affordable, and healthy housing. In addition to their renter training, the SMaRT program will also begin landlord training. As part of Empower Chattanooga, our team will work with Catholic charities to add energy efficiency resources to their curriculum for both renters and landlords.

A third example is that the Trust for Public Land has developed Healthy Connected Chattanooga which analyzes current needs and opportunities to get residents connected to the parks and public fitness facilities in their neighborhood which has positive impacts on their health, the safety of their neighborhood, and reduces their energy use. If more residents are able to access public parks accessible especially by walking or biking, it increases the presence of people on the street which has been found to reduce crime. Additionally, residents will be able to get more exercise to stay healthy and as a side benefit, spend less time indoors using appliances, equipment, and HVAC. As their energy use is reduced from both personal behavior and investments in the efficiency of their home, the more they can spend on fresh foods and health care, increasing their ability to stay healthy and active.

Finally, Chattanooga Neighborhood Enterprise will participate in Empower Chattanooga by consulting with the core team on third party certifications for new construction and renovations of affordable housing. They will also provide low- or no-interest loans to qualified residents to make energy efficiency improvements.

# Step Four Engage

Empower Chattanooga will use layers of engagement with the entire community, municipal government, schools, as well as a range of strategies in our target area.

## Community-wide

green|spaces, EPB, the City of Chattanooga, the University of Tennessee at Chattanooga and other Empower Chattanooga partners will use the Empower Chattanooga web site, which will be launched in January of 2015, our individual organization web sites, social media, broadcast television to provide simple and useful information to the broader community and connect people to the available resources not only for energy efficiency, but also the related social programs with which we are working. As the Ochs Center report suggested, the messaging campaign will focus not only on the economic benefits, but also environmental and societal benefits of the strategies employed in Empower Chattanooga.

EPB will provide residents access to free energy audits and will administer the new TVA eScore energy efficiency rebate program which will provide financing options for home energy upgrades. EPB will also offer their own Smart Build program which certifies new energy efficient homes that are pre-wired for communications..

green|spaces and EPB will provide accredited professional development courses for local realtors and appraisers to provide them with the tools to accurately assess the real present value of future energy savings based on HERS ratings and how to communicate that value to buyers and sellers.

## Municipal Government

The City of Chattanooga, as part of our Empower Chattanooga initiative, is working to benchmark and optimize municipal energy use as an example to the community and to promote transparency and results in the operation of the city facilities. Erik Schmidt, the city's sustainability coordinator, is currently working with the Empower Chattanooga team and the Tennessee Department of Environment and Conservation to develop a request for proposals which will engage energy savings companies to provide proposals for energy-savings contracts to optimize the performance of the cities portfolio and help finance energy efficiency improvements.

Additionally, the city and members of the Empower Chattanooga team are exploring the possibility of deploying a network of community renewable energy generation facilities on city-owned property such as youth and family development centers, brownfield sites that are difficult to develop otherwise, and on rooftops of participating homeowners. A share of these community solar programs can offset high energy costs in some of the low-income households in our target area.

## Schools

We will be working with as many public and private schools within the city limits as possible to both connect the facilities staff with the resources they need to make smart energy efficiency improvements to the school, but also educate the children about simple ways to save energy at home. We will also use the schools in our focus area as



Graphic Design by UTC Students Zachrey Dugger, Joshua Surrett, Dalton Greenwood, Jessica Lowe, Julie Heavner, Maria Walker, Kim Appeldoorn, Morgan Hampton, Megan Foster, Aly Butler, Anji Rogers, Kara Patrick, Kiley Gunter and Devin Caldwell; University of Tennessee at Chattanooga

primary locations for community outreach events. Schneider Electric has partnered with green|spaces to provide additional educational material with curriculum and support material (see the education section for more information).

With University of Tennessee at Chattanooga as part of our core project team, we are also working with higher education institutions. For example, a graphic design class at the UTC provided some marketing concepts including educational material for children using games and cartoon characters to help explain energy efficiency and encourage them to save energy at home.

### **Target Area**

Because the Ochs Center report noted that while email and conventional mail tend to be ineffective communication strategies in our target neighborhoods, one of the most important engagement strategies we will use is a series of neighborhood outreach events, staged at primary and secondary schools, that will host a broad range of community organizations and which will give residents direct access to information and resources including energy efficiency. Using some of the strategies developed by the UTC graphic design students, such as the efficiency cart pictured on the preceding page, we will use these community events to explain to people face to face not only why energy efficiency is important, but how it relates to other issues that surround them.

The city will use its network of neighborhood association presidents that go door to door and will encourage residents in our target neighborhoods to sign up for free energy audits, tell them about our success stories, encourage them to participate in our mobile texting program, and to get feedback on the effectiveness of our efforts. Residents text “Start Saving” to 72727 and are enrolled in our texting platform that. We also plan to use billboards and yard signs to help market Empower Chattanooga in our target area.

As part of Empower Chattanooga, EPB led our core team and many of the program partners to prepare a proposal for \$5 Million of TVA’s Extreme Energy Makeover (EEM) Grant Program that would fund deep energy retrofits to 400 low-income homes in our target area, reducing their energy use by 25% or more. The Empower Chattanooga outreach events and education programs would be used for residents to register for a free energy audit which would begin their registration and qualification process for EEM. This program would also include pre- and post-inspections, upgrades to mechanical systems, upgrades to insulation, weatherization, programmable thermostats and water heater switches with demand response capabilities, blower door testing and in-home training as necessary depending on the original energy audit. For more detailed information about our Extreme Energy Makeover proposal, please see Appendix C.

Regardless of whether our EEM proposal is accepted by TVA, the free energy audits will still be encouraged at community events as a means of helping residents identify the most cost-effective ways to reduce their consumption and provide them with the education and training materials that our team is preparing. EPB and our project team will pilot the strategies for 10 low-income homes in our target neighborhoods to test their effectiveness and to use their results to leverage additional funding strategies.

For those residents that would not qualify for the EEM program, or if we do not receive the grant funds, our team will work with local financial institutions to develop a range of financing products targeted at energy efficiency improvements made through our program and proven through our EEM pilot. We will explore the potential for green bonds and social impact bonds to create an effective primary and secondary market with considerations for the application of these tools to rental housing in addition to owner-occupied funds. Additional financing will be available through Chattanooga Neighborhood Enterprise, Habitat for Humanity, Orange Grove, the HOME Investment Partnership Act Program, and others. Our team will develop, publish, and maintain a list of potential funding sources with the qualification information.

Partner organizations that receive calls for assistance for paying utility bills will direct homeowners to our energy efficiency resources including free energy audits provided by EPB. If we receive the EEM Grant, they will also be given instructions for how to register and qualify for funded improvements.

Finally, before upgrades are made that would tighten the envelope of a building to reduce infiltration, it is important to consider whether mold is present in wall cavities or inside the home. As part of Empower Chattanooga, we have requested an additional grant from Blue Cross Blue Shield of Tennessee for the mitigation of mold and other asthmagens which will help address some of the acute health issues for vulnerable residents in these neighborhoods before their homes are weatherized and air infiltration is greatly reduced.

## **Step Five Analyze and Expand**

Using live data from EPB, Chattanooga Gas (AGL), and the United Way in addition to the advisory board and peer-to-peer feedback loop we will monitor the effectiveness of strategies as we deploy them neighborhood by neighborhood. We will also have quarterly reviews with the consortium of organizations to review the effectiveness of the energy efficiency strategies and their effect on their social and economic programs within our target area. Using this feedback we will adjust our engagement strategies and potentially develop and deploy new strategies during the two year performance period.

In 2017, we will use the entirety of the data and anecdotal feedback from the programs outlined in this plan, programs from other organizations, and programs that are created from the ongoing development of this plan to generate the first Empower Chattanooga biannual report. This report will highlight successes, challenges, and lessons learned from the previous two years in order to inform the continuation of programs within the original target area and to identify new target areas. If Chattanooga wins the Georgetown University Energy Prize, the funds will be directed to those programs or strategies that showed the greatest impact on the social, economic, and environmental sustainability of the target neighborhoods to continue those programs in the initial target area and deploy them in next target area. These programs will be identified by the Ochs Center, advisory board, and core project team including community leaders from the initial target area.

## **program management and partners**

Empower Chattanooga will be managed by green|spaces, a local nonprofit dedicated to advancing the sustainability of living, working, and building in Chattanooga with the support and assistance of the core project team and other contributing organizations. The Lyndhurst, Benwood, and Footprint Foundations have expressed support for Empower Chattanooga, and grant requests have been sent to all three. In addition, EPB prepared and submitted a proposal to TVA for the Extreme Energy Makeover Program with the support and assistance of green|spaces and many of the same contributing organizations (see Appendix C) and green|spaces will submit a grant request to the Blue Cross Blue Shield Foundation for our energy efficiency and mold remediation program.

While some programming will be provided exclusively for the purpose of Empower Chattanooga, much of the work will be done through programs that already exist and those programs will continue to be managed by the original organization. Through the coordination described in the program plan, we will work with the existing programs offered in our target area to identify opportunities for energy efficiency to play a supporting role.

The biographies for members of the core project team are provided below.

### **Michael Walton, AIA, NCARB, LEED AP, Executive Director, green|spaces**

Michael grew up in East Tennessee, attended the University of Tennessee College of Architecture and Design and the ETH-Zurich, and practiced architecture in Washington, DC at Envision Design and Perkins+Will for seven years before moving back to Tennessee to become the executive director of green|spaces. For almost a decade he has worked to integrate sustainability into the architecture and public policy of the city in which he lives. He has experience with single and multi-family residential, commercial architecture, commercial interiors, and urban design and served on the Washington DC Construction Codes Coordinating Board Green Technical Advisory Group. Michael also serves as the Mid-Atlantic Regional Team Leader for the American Institute of Architects Committee on the Environment.

### **Dawn Hjelseth, LEED GA, Director of Development, green|spaces**

Originally from Holland, Michigan, Dawn Hjelseth graduated from Grand Valley State University with a bachelor's degree in International Business and Marketing with an emphasis in Spanish, Sales and Non Profit Management. She fell in love with Chattanooga after trail blazing on the Cumberland Trail near Soddy Daisy. After college, she was brought to Chattanooga through AmeriCorps where she served at Habitat for Humanity in grant writing, marketing development and event management. As a child, her upbringing emphasized recycling, gardening and enjoying nature. She was attracted to green|spaces as they are recognized as a driving force behind educating the public on sustainable building practices. Her focus now is to raise funds to provide support to the various programs, classes and events provided by green|spaces.

### **Chris LeCroy, LEED AP, Program Director, green|spaces**

Chris is the program director for the green|light program at green|spaces, Chattanooga's green business certification. He has ten years of experience in the construction industry in a variety of positions including residential framer, electrician, commercial and residential general contractor, and sustainability engineer. His M.S. in Sustainable Construction Management from Colorado State University has afforded him key roles on several LEED projects, including LEED for New Construction, Operations & Maintenance, Schools, and Building Design & Construction. He also holds a B.S. from Georgia Tech. Chris' primary area of interest is making the business case for sustainable facilities operation and energy efficiency retrofits.

### **Elizabeth Hammitt, Director of Community and Environmental Stewardship, EPB**

Elizabeth Hammitt grew up in Columbia, South Carolina and developed a passion for the environment at an early age. She attended Warren Wilson College, a sustainability-focused work college in Asheville, North Carolina. Shortly after college, Elizabeth started her career at EPB, a municipal electric and communications utility known for operating one of the most advanced smart grids in North America and gigabit broadband network in Chattanooga, TN. Working with a cross-functional team, Elizabeth established the first the formal environmental stewardship program at EPB. Today, she serves as the Director of Environmental Stewardship and Community at EPB where she develops and implements strategies related to sustainability and community initiatives. She serves on the boards of the Tennessee Aquarium and green | spaces. Elizabeth is a LEED Accredited Professional with specialty in Operations and Maintenance and has been active in several environmentally-focused organizations. She and her husband, Chris, serve as trustees at the UnFoundation, a micro-granting organization dedicated to making Chattanooga a better place.

### **Andrew Campbell, Technical Consultant, EPB**

Andy provides analytics expertise to the Chief Operating Officer (COO) of EPB, transforming and translating detailed source system data into actionable intelligence for executive level decisions. His strategic projects have included the development of analytics to provide better customer service by identifying spikes in customer energy usage, creating storm replays that communicate to customers how Smart Grid automation minimizes their time without power, and managing a joint effort with Bell Labs to develop load prediction algorithms. Andy also uses data to support strategic decision making by analyzing historical field jobs and crew work to assess potential purchase of a satellite operations facility and visualizing the geographic dispersion of products. He also assists operational project by visualizing real time operational data to improve efficiency and situational awareness during storm events by mapping outages and available crews, and automating the visualization of sequence of event (SOE) data from SCADA. Andy holds an M.S. in operations research from the Florida Institute of Technology and a B.S. in Mathematics and B.A. in Economics from Rhodes College where he was a Hyde Scholar and a member of Phi Beta Kappa.

### **David Peirano, Manager, Engineering Services and Communication, EPB**

David is the Engineering Services and Communication Manager at EPB where he manages the customer engineering group and energy services group. He has 24 years of experience in engineering management and is currently responsible for managing commercial and industrial accounts, program implementation, and residential energy efficiency initiatives. David oversees all residential in-home energy audits, small commercial audits, rebate processing, and customer education. He also directed the controls engineering group on the design and commissioning of distribution automation, Smart Grid, virtual power plant, and 46kV automation initiatives. David also helped manage the customer-side installation during EPB's launch of fiber optics. David served as a Gas Turbine Systems Technician, Machinist Mate in the United States Navy and holds a Bachelor of Engineering from Vanderbilt University and an Associate of Science from Volunteer State Community College. He has certifications as a Certified Energy Manager, Duct and Envelope Tightness Testing, Power Distribution Engineer, and Six Sigma Green Belt and serves on the board of ASME and ACE and is the president of the Stuart Heights Swim and Tennis Club.

### **Erik Schmidt, CPESC, TN-QHP, Director of Sustainability City of Chattanooga**

Erik is currently serving under Mayor Andy Berke as Director of Sustainability for the City of Chattanooga. As Director of Sustainability, Mr. Schmidt is tasked with championing the integration of sustainability into the execution of City-wide initiatives, as well as identifying and driving sustainable practices from within City operations. Originally born and raised in Houston, TX, Erik earned his B.A. in Biology/Environmental Studies from Baylor University in Waco, TX. Prior to joining the City of Chattanooga, Erik gained over ten years' experience in the environmental consulting industry with a focus on construction stormwater compliance and monitoring, ecology (southeastern U.S.), NEPA studies, mitigation and permitting. During this time, Erik was instrumental in working with City, County, State, and Federal officials, as well as private stakeholders in the establishment of a permanent conservation easement (PCE) for a rare, 55-acre wetland during the design and permitting of a new roadway servicing the Chattanooga Volkswagen plant.

### **Donna Williams, Administrator, Department of Community and Economic Development, City of Chattanooga**

Donna is a senior-level economic development and neighborhood revitalization professional. She was appointed by Mayor Andy Berke as the first administrator of the newly created Department of Economic and Community Development in May of 2013. The creation of the department was part of a broader reconfiguration of the city government and includes divisions that drive and strongly impact Chattanooga's growing economy. Previously, Donna served as Executive Director of Habitat for Humanity of Greater Chattanooga where she led a team of creative problem solvers who are genuinely committed to serving our community by helping low-income families achieve their dream of home ownership, stability and wealth creation. Since 2002, her focus has been exclusively on urban neighborhoods. In addition to selling and leasing hundreds of properties, her work includes: designing builder and buyer incentives, delivering Realtor and lender training, product development and more. Williams, a native of Chattanooga, is

a graduate of Brainerd High School, and earned her Bachelor's degree in Marketing from the University of Tennessee at Chattanooga.

**Jonathan Butler, Affordable Housing Specialist, Department of Economic and Community Development, City of Chattanooga**

Jonathan Butler is a native of Atlanta, GA. He received a Bachelor's Degree from Emory University and a Law Degree from American University's Washington College of Law. He moved to Chattanooga to join the Department of Economic and Community Development as the Affordable Housing Specialist. After practicing real estate law and serving as a private consultant, he welcomed the opportunity to work for the City of Chattanooga and its citizens because of his lifelong interest in public service. Jonathan is also an accomplished writer and poet with experience as a professional writing and communications consultant.

**Eileen Robertson-Rehberg, PhD, United Way of Greater Chattanooga**

Eileen Robertson-Rehberg currently is Director of Community Impact, Data Analysis and Strategy at United Way of Greater Chattanooga. Dr. Rehberg has a multidisciplinary background with two masters' degrees with concentrations in evaluation, city and regional planning and economics, and a Doctorate in Policy Analysis. Dr. Rehberg's academic research addressed issues of social and environmental justice and community development, themes that inform her community research and reports on early childhood, education, housing, crime and economic development. A 2002 graduate of Cornell University, Dr. Rehberg was formerly Senior Policy Analyst at the Ochs Center for Metropolitan Studies and the primary author and data support for the Center's State of Chattanooga Region Reports (2006, 2008 and 2010).

**Dr. Neslihan Alp, Interim Dean of Engineering, University of Tennessee at Chattanooga**

Neslihan Alp, Ph.D., P.E. is the Interim Dean of the College of Engineering and Computer Science at the University of Tennessee at Chattanooga. Dr. Alp has been an educator in engineering for 22 years and joined UTC in 1999 as an assistant professor. Since then, she has helped quadruple enrollment and graduation rates in undergraduate and graduate Engineering Management and Technology programs, developed undergraduate and graduate Construction Management programs, and raised the profile of the Online Engineering Management master's program. In her role as Interim Dean, Dr. Alp has worked to improve the quality of education, engage with the community, startup new doctoral and other programs, implement the "Complete College Act," maintain the accreditation for all programs, recruit students, and increase the research opportunities for the college. In addition to her educational experience, Dr. Alp has served as a consultant to many public and private employers including TVA, EPB, and Volkswagen. She has received numerous awards and her work has been widely published. Dr. Alp received her Bachelor of Science in Engineering Management and Master of Science in Industrial Engineering from Istanbul Technical University in Turkey, and she received the Doctor of Philosophy, Engineering Management from the University of Missouri-Rolla, now Missouri University of Science and Technology.

## **additional energy efficiency programs**

In addition to the engagement strategies and programs outlined in the program plan, that we believe will lead to the greatest energy savings, the following energy efficiency programs contribute to reducing energy use in Chattanooga.

### **City of Chattanooga**

In 2012, the City of Chattanooga adopted the IECC 2009 Energy Code, which includes mandated DET Testing on all new homes and major rehabs. Additionally, the City retrofitted 6,000 streetlights to LED with the plan to continue to replace out lights with LED in the coming years. The city is also in the process of uploading the utility data for all of its buildings into EPA Energy Star Portfolio Manager to better track its energy usage and compare with similar building types.

### **TVA**

TVA's Promotes the development of larger-size renewable systems between 50kw and 20mw in the TVA service area. Eligible systems include solar, wind, biomass (direct combustion or gasification) and methane recovery. TVA has offered the Solar Solutions Initiative (SSI) since February 2012. SSI provides incentive payments for mid-size solar projects in the TVA's Renewable Standard Offer program. TVA also operates a range of energy efficiency incentive programs through local power companies, such as Chattanooga's Electric Power Board (EPB).

### **Electric Power Board**

EPB offers ENERGY STAR® and TVA's Energy Right® certifications. Both offer financial incentives for customers to build or renovate for energy efficiency - up to as much as \$800 toward home improvements. EPB and TVA are transitioning Energy Right to a new program called Energy Score. EPB has also launched Smart Build, a new residential certification that offers incentives for energy efficient homes, served by either electric or gas, and pre-wired with communication infrastructure.

### **green|spaces**

green|spaces has supported a wide range of energy efficiency and sustainability programs since its inception in 2008 directly contributing to 41 LEED certified projects, 17 photovoltaic solar arrays, 60 "BetterBuilt"(Now EPB Smart Build) efficient green homes, over 150 LEED Green Associates and Accredited Professionals, 23 certified duct testers, and 6 HERS Rating providers. Additionally, they are building a series of four net zero energy homes during the two year performance period. green|spaces also provides a green business certification program called green|light which focuses on business' internal operating policies to ensure they are measuring and optimizing energy and resource consumption and employee wellness and engagement.

### **Habitat for Humanity**

The local Habitat for Humanity affiliate has implemented a Neighborhood Revitalization Program to assist low-income families in upgrading their homes via weatherization and energy efficient improvements in areas that they are constructing new Habitat homes. All new Habitat homes are Energy Star 3.0 rated.

### **Chattanooga Neighborhood Enterprise**

Completed 740 Weatherization jobs from FY2010 to FY2012. The jobs included replacing HVAC units, window repairs and other projects to reduce energy costs. SETHRA is currently administers the weatherization program in the Greater Chattanooga Area, but CNE has also restarted a loan program for energy efficiency and other home improvements.

## utility data reporting

### Residential Accounts

For all residences including single family owner occupied, single family renter occupied, and multi-family with individually metered units, the local power and gas companies utilized their software to filter for all residential accounts in order to provide the required kilowatt-hours and therms usage data. It is our understanding that the data set includes all residential accounts with the exception of multi-family units served by a single meter and paid at commercial rates. The team will work with the Chattanooga Apartment Association to identify such units and include them through enumeration. More detail is provided on the included GUEP Energy Data Collection Information forms in Appendix D.

### Municipal Accounts

For all municipal facilities and accounts, including street lights and water/sewage treatment plants, the local power and gas companies utilized their software to filter for all municipal accounts in order to provide the required kilowatt-hours and therms usage data. This list of accounts was compared to the City of Chattanooga's list of accounts on file for accuracy according to the competition guidelines. No known exclusions were made. More detail is provided on the included GUEP Energy Data Collection Information forms in Appendix D.

### Public and Private Schools

One of the complicating factors for acquiring the necessary data for the Georgetown University Energy Prize is that all of the public schools within the city limits of Chattanooga, TN are technically part of the Hamilton County School District and, because Hamilton County encompasses more than just the City of Chattanooga, we have to differentiate the data from schools that should be included from schools that should not be included. Further compounding this issue is the number of private schools in the Chattanooga area.

To overcome these hurdles we obtained a list of all county schools located within the city limits and identified which of the private schools were located in the city limits. We identified 44 public schools and 3 large private schools for data inclusion purposes. To ensure that these 47 schools constitute 80% of the total student population in the city we tasked this calculation to the local organization Public Education Foundation. They identified that over a three-year average the 47 schools under consideration comprise 83.09% of the total student population served in the city of Chattanooga. Each school included, provided all of their electric and gas account numbers to green|spaces who then provided the account information to the appropriate utilities so that aggregate consumption data could be compiled.

## **innovation**

From the time two lawyers pitched an innovative idea to bottle Coca Cola in Chattanooga, to EPB's development of the fastest, most pervasive, gigabit fiber optic network in the western hemisphere, Chattanooga's modern history has been built on innovation. The ability to collaborate and connect non-obvious ideas lives at the heart of Empower Chattanooga.

In addition to the collaborative nature of our program plan and the innovative approach to delivering energy efficiency programming through broader challenges to quality of life, we will work with the Company Lab and Causeway to identify additional opportunities for innovation. Co.Lab supports entrepreneurship in Chattanooga through business development programs for beginning entrepreneurs, mentor-driven accelerators for more-developed businesses, and the unique Gig-tank which is a 12 week summer program which explores innovative ways to leverage Chattanooga's gigabit fiber optic network and other collaborative resources. Causeway provides similar services, but is focused on the nonprofit sector rather than for-profit. Similar startup support exists in communities all over the country, but it seems they are infrequently directly involved in energy efficiency programs.

As part of Empower Chattanooga, the core project team will work with Co.Lab and Causeway as the collaboration and feedback identify specific challenges that are not addressed by existing public or private services. We will work to hold workshops, reverse pitches, and pitch practices in the target neighborhoods to harvest the passion and creative spirit within and to create both the solution to challenges and simultaneously provide economic opportunity for residents.

## potential for replication

As discussed in the introduction to the program plan, Chattanooga, Tennessee is an emblematic mid-sized southern city that faces many of the same cultural, economic, and environmental challenges with regard to energy efficiency programs as other mid-sized American cities. Having been named the “dirtiest city in America” in 1969, the city government worked with local businesses, institutions, and communities to turn the city around through a series of coordinated, targeted programs that focused on protecting the environment while spurring sustainable redevelopment. Because of this experience, Chattanooga stands out as a reliable proving ground for innovative approaches that have been developed and implemented locally and then exported to other mid-sized and even large cities in the United States and abroad. One example of this is the smart grid with a fiber optic backbone that the local electric utility, EPB, developed with the assistance of the American Recovery and Reinvestment Act. After Chattanooga pioneered this approach and has shown both direct and indirect economic benefit, other cities are exploring investing in similar smart grid and communications infrastructure.

Empower Chattanooga is designed for replication both within the city and in other cities of varying size. It is presented as a flexible framework built on analytics, tailored to the needs and challenges of individual neighborhoods, and built on the body of existing programs to amplify their effectiveness by considering how energy efficiency and the efficiency of communicating services can keep more resources within the neighborhood.

The specific plan for the replication of Empower Chattanooga was outlined in our program plan under *Step Five, Analyze and Expand*, but the entire program plan was written for other communities to adapt to their own needs. While the research is specific to Chattanooga, the approach is infinitely adaptable.

## likely future performance

Ultimately, the likely future performance of the City of Chattanooga will represent a model of environmental, economic, and social sustainability. In the near term, if we are successful, we expect the future performance in our target neighborhoods to not only substantially reduce energy use per capita, but also improve health, improve economic stability, improve employment opportunities, improve connectivity, improve the quality of the local environment, increase access to public parks, increase internet access, decrease unemployment, decrease utility assistance requests, decrease crime rates, decrease flooding, and decrease urban heat island effects. We plan to track progress across as many of these metrics as possible in addition to energy efficiency to demonstrate the systemic relationships between them. Our specific energy goals in our target neighborhood would be to reduce the energy consumption in 400 homes by at least 25%.

Within the next two years, our team expects the municipal government of the City of Chattanooga to be able to identify and optimize their energy use with the current internal programs and future planned programs, especially with the help of energy savings performance contracts.

The public and private schools understand better than most in Chattanooga the importance of energy efficiency and environmental stewardship. Our team will continue to work with them to optimize their operations and to support the incorporation of sustainability in to their curricula. Additionally, we are engaging higher education institutions in the city to leverage their skills, interests, and resources to improve the community.

## education

17 public and private schools are located in our target area. We plan to use these schools not only as opportunities to find energy savings, but also for education and outreach in the community. Working with UTC and Schneider Electric, our team will help develop age-appropriate curricula to include energy and water efficiency and other sustainability concepts. We will also use the schools as central gathering points for the community events described in the program plan.

Schneider Electric has offered to help Empower Chattanooga by assisting with our education program with the following:

### Saving Energy and the Environment

Children are our future and Schneider Electric TM aims to assist those of all ages to be more responsible with energy in their everyday lives. By incorporating energy into the school curriculum, teaching how everyday actions can save energy, and upgrading facilities to run at their most efficient, we can save money and ensure a sustainable future for both ourselves and our children.

The Conserve My Planet Behavioral Program puts students in the driver's seat, helping them to understand how they can make changes today that will help everyone tomorrow. Students learn how to minimize energy use, empowering them to make the changes necessary to be energy smart in our schools.

#### 1. Curriculum

Schneider Electric, in partnership with the National Energy Education Development (NEED) Project, will provide lesson plans and teaching material aligned to state requirements, along with other ways to get your students engaged in understanding energy and how we can become more energy efficient. The package includes:

- > Grade-Specific Energy Curriculum Plans
- > Classroom Activities and Demonstrations
- > Field Trip Suggestions
- > Energy Audit Project Plans
- > Competitions

#### 2. Behavior

In order to truly make an impact, behaviors must change. We start with the Sustainability Master Plan, which addresses everything from how your buildings work to selecting the most environmentally friendly cleaning products. The plan is then completely customized to the needs of your organization, which can include:

- > Building Optimization Plan
- > Recycling Program
- > Green Cleaning Program
- > Green Office Program
- > Energy Assessment and Commissioning
- > Occupancy Planning
- > Vending Machine Plan
- > Environmental Standards
- > Electronic Equipment and Energy Strategy
- > Communication Strategy

Once your Sustainability Master Plan is in place, we will help you set up programs and activities for the students that will take the plan from paper to reality and drive new habits.

### 3. Equipment

A comprehensive energy plan is not complete until the building itself is running at optimal efficiency. We can design and install facility improvement projects that will save you money on your utility bills while increasing both student and teacher comfort as well as safety.

By putting students in charge, they learn...

Integrity—I will do the right thing even when no one is looking.

Leadership—I will lead through serving others.

Esteem—I am proud to be a Green Ambassador.

Awareness—I will learn and share knowledge with family and friends.

Doing Together—I will be part of the team to put a smile on the planet.

### Key Players

#### Students

Students are the most important aspect of the program. After all, this program is not only designed to save energy, but will also shape student views on how to make the best use of energy and resources throughout their lives.

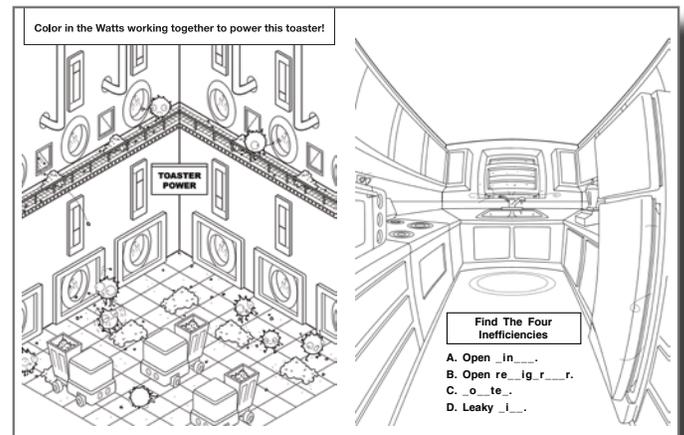
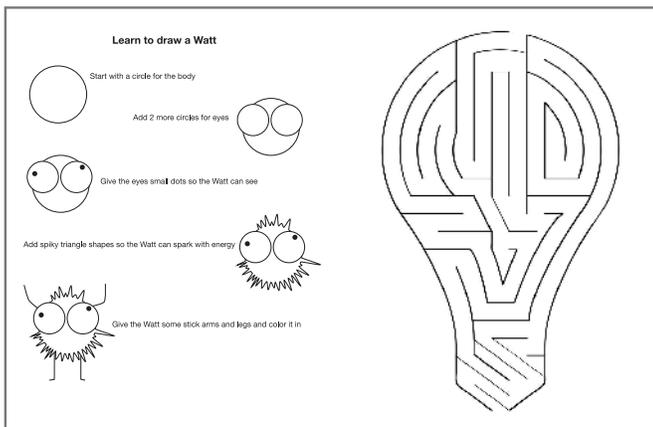
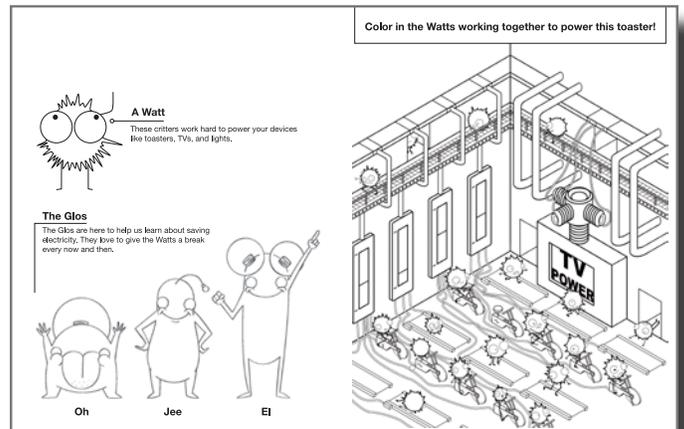
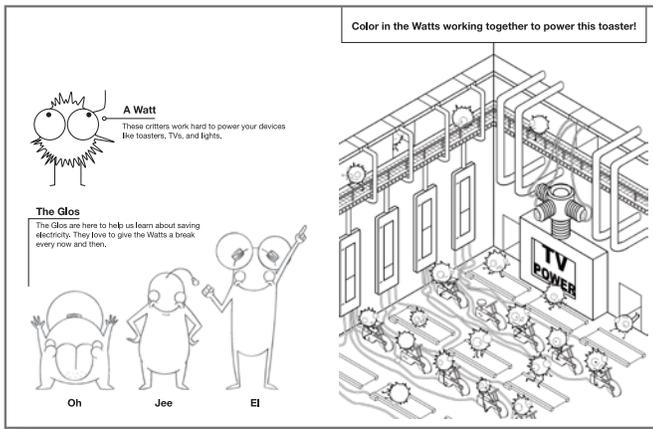
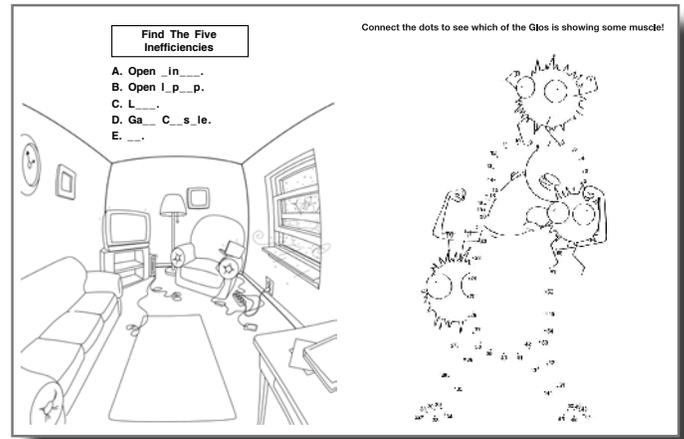
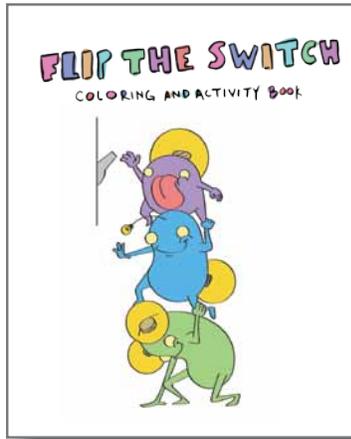
In order to have lasting impact, we put students in charge of the program. They police the schools looking for energy waste. They run the recycling programs. They even teach the teachers how to be energy efficient. By empowering students, the program can achieve the energy reduction intended by developing leadership skills and a true understanding of energy that will not be forgotten over the next holiday.

#### Program Sponsor

Each facility will have at least one sponsor that will be responsible for supporting the students and championing the Conserve My Planet Program. This special individual will work closely with the Energy & Sustainability Manager (ESM) to help organize daily activities and regular competitions to keep energy on the forefront of minds throughout the year.

#### Energy & Sustainability Manager

Your facility will have a dedicated Schneider Electric Energy & Sustainability Manager, trained in the latest energy conservation methods and technologies that will work closely with administrators, faculty, staff, and students to implement a holistic energy plan in all of your facilities.



Coloring book concept. Graphic Design by UTC Students Zachrey Dugger, Joshua Surrett, Dalton Greenwood, Jessica Lowe, Julie Heavner, Maria Walker, Kim Appeldoorn, Morgan Hampton, Megan Foster, Aly Butler, Anji Rogers, Kara Patrick, Kiley Gunter and Devin Caldwell; University of Tennessee at Chattanooga

**prize purse**

As described in the program plan, in 2017, we will use the entirety of the data and anecdotal feedback from the programs outlined in this plan, programs from other organizations, and programs that are created from the ongoing development of this plan to generate the first Empower Chattanooga biannual report rather than a “final” report. This report will highlight successes, challenges, and lessons learned from the previous two years in order to inform the continuation of programs within the original target area and to identify new target areas. If Chattanooga wins the Georgetown University Energy Prize, the funds will be directed to those programs or strategies that showed the greatest impact on the social, economic, and environmental sustainability of the target neighborhoods to continue those programs in the initial target area and deploy them in next target area. These programs will be identified by the Ochs Center, advisory board, and core project team including community leaders from the initial target area.



# Empower

CHATTANOOGA

## Appendix B

Informing the Empower Initiative  
Ochs Center for Metropolitan Studies



# Informing the Empower Initiative

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An Ochs Center Report to green|spaces

10/28/2014

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## Report Background

green|spaces engaged The Ochs Center to assist in collecting and analyzing community feedback to inform its Empower initiative, which targets reducing energy use in three Chattanooga neighborhoods via a holistic approach that is intended to improve quality of life measures overall. The Ochs Center’s work was intended to achieve two primary objectives:

- 1) Support the identification and prioritization of the needs of stakeholders in the Highland Park, East Chattanooga, and East Lake communities for the purpose of better understanding opportunities to reduce energy use
- 2) Provide a preliminary characterization, informed by key stakeholder feedback, of the current state of awareness, interest, and use of services and methods for reducing residential energy use, as well as identify opportunities to promote awareness, interest, and use in the target neighborhoods

The Ochs Center team, which included Marclyn D. Porter from the University of Tennessee-Chattanooga, conducted two key tasks within the project scope, as outlined below.

- **Focus Groups:** Led by Marclyn D. Porter, The Ochs Center designed and conducted three focus groups with community leaders and key stakeholders, one focus group in each of the target neighborhoods. The focus group questions assessed the current state of awareness, interest, and use of services and methods for reducing residential energy use, and identified opportunities to promote awareness, interest, and use in the target neighborhoods. A summary of focus group findings and related recommendations can be found in the *Focus Group Analysis* section of this report.
- **Existing Data Collection & Review:** The Ochs Center identified and reviewed recent studies and available secondary data related to community priorities in the Highland Park, East Chattanooga, and East Lake neighborhoods. A limited review of studies related to energy use reduction was also conducted. This information, a list of relevant resources, and additional recommendations from The Ochs Center team can be found in the *Data Review & Resources* section of this report.

## Focus Group Analysis

### Procedure

Three focus group sessions were conducted involving a total of 12 residents, community leaders, and other stakeholders from the East Chattanooga, Highland Park, and East Lake communities. Each of the one and one-half hour interactive sessions provided comprehensive and rich data which has enabled the Ochs Center to gain a better understanding of the participants' perceptions, attitudes, and experiences regarding energy related issues (re: consumption, efficiency, sustainability, etc.) as related to their specific neighborhood, and/or the community as a whole.

The sessions were conducted by Marclyn D. Porter from UTC and assisted by Brad Klosterman from The Ochs Center. A moderator guide and questioning route was developed based upon green|spaces' needs, goals, and objectives. The sessions were conducted at The Glass House, Girls Inc., and the Salvation Army of East Lake facilities. Participation in the focus groups was voluntary, and there was not any financial incentive offered for participation. Light refreshments were served and all participants reviewed and signed the "Informed Consent" agreement prior to the beginning of each session. Participants were also asked to complete a brief demographic questionnaire.

Each focus group session was tape recorded, with participants' permission, and transcribed with all identifying information removed to ensure the confidentiality of participants and those who may have been mentioned during the session. The transcripts were then reviewed and the following represents a compilation of the data collected. In addition, specific quotations have been included to provide context and depth.

### Participant Demographics

On the following pages you will find a demographic breakdown of focus group participants by neighborhood.

**East Chattanooga Participants:**

Characteristics	n=5
Gender	
Male	2
Female	3
Race Ethnicity	
African American	1
Asian	
White	2
Hispanic	
Two or more races	2
Age	
Mean	42
Range	25-56
Lived in Community	
Mean	4.5 yrs.
Range	1mo.- 8yrs.
# in Household	
Mean	1.8
Range	1-3
# Under 18	
Mean	2*
Range	0-2
Own Home	
Yes	1
No	3
Other(mother's)	1

\*Only one household with children

**Highland Park Participants:**

Characteristics	n=4
Gender	
Male	3
Female	1
Race Ethnicity	
African American	
Asian	
White	3
Hispanic	
Two or more races	1
Age	
Mean	46
Range	38-59
Lived in Community	
Mean	9 yrs.
Range	8-12 yrs
# in Household	
Mean	2.25
Range	1-4
# Under 18	
Mean	2*
Range	0-2
Own Home	
Yes	4
No	
Other	

\*Only one household with children

**East Lake Participants:**

Characteristics	n=3
Gender	
Male	1
Female	2
Race Ethnicity	
African American	1
Asian	
White	2
Hispanic	
Two or more races	
Age	
Mean	57
Range	54-63
Lived in Community	
Mean	32 yrs.
Range	13-50 yrs.
# in Household	
Mean	1.6
Range	1-2
# Under 18	
Mean	1*
Range	0-1
Own Home	
Yes	3
No	
Other	

\*Only one household with children

**East Chattanooga Participants:**

Characteristics	n=5
Monthly Utilities Bill	
Pay w/o assistance	5
Pay with assistance	
Included in rent	
Not sure	
Other	
Employment (SA)	
Full-time outside	2
Part-time outside	2
Full-time in home	
Part-time-in home	
Retired	
Disabled	
Other (self-employed)	1
# Individuals contribute to income	1-2

**Highland Park Participants:**

Characteristics	n=4
Monthly Utilities Bill	
Pay w/o assistance	4
Pay with assistance	
Included in rent	
Not sure	
Other	
Employment (SA)	
Full-time outside	2
Part-time outside	1
Full-time in home	1
Part-time-in home	1
Retired	
Disabled	
Other	
# Individuals contribute to income	1-2

**East Lake Participants:**

Characteristics	n=3
Monthly Utilities Bill	
Pay w/o assistance	3
Pay with assistance	
Included in rent	
Not sure	
Other	
Employment (SA)	
Full-time outside	
Part-time outside	
Full-time in home	
Part-time-in home	
Retired	1
Disabled	1
Other (homemaker)	1
# Individuals contribute to income	1

## Introductory Questions

- *When you hear people talk about “energy efficiency” or “energy conservation”, what comes to mind? What do you think of? What does this term mean to you personally? What does this mean to your neighborhood/community?*
- *Is this an issue that is important to you personally? To the community? Is this an issue that you “care about”? Why or why not?*

All participants indicated that energy efficiency and conservation were important issues to them personally, especially from an economic perspective. Energy efficiency/conservation translated to “cost savings” for focus group participants, as all indicated that they are financially responsible for their utility bills (without the help of stipends, or other forms of support) and all, except for East Lake participants, indicated that they were employed in either a full-time or part-time capacity.

At each focus group session, participants stated that they felt like they “*knew what to do*” in order to be more efficient, but lacked the resources or, in the case of participants who were renting, the authority to make those kinds of changes. Participants recognized the benefits of replacing old, drafty windows, adding attic insulation, and replacing old appliances and HVAC units with newer more efficient models, yet the costs of such improvements were well beyond their means. Many participants expressed frustration at the inability to afford even the simplest of cost efficient measures, such as using high efficiency light bulbs versus “regular” light bulbs. *“I know that long-term I would save money using those light bulbs...but I don’t have \$23 dollars to buy one light bulb when I can get a pack of 4 for a dollar...”*

Additional aspects of conservation mentioned included recycling and utilizing alternative sources of energy such as solar power. The use of public transportation was also indicated as a means to conserve energy, although participants indicated frustration at the lack of public transportation options, the lack of flexibility in terms of access and cost, and the lack of commitment to increase public transportation routes. Many participants equated the term “green” with “expensive” and “feel good projects”. One participant commented, *“When I hear about ‘green projects’ it makes me think of some kind of grant or something that is a one-time thing that may be a beautification project...but not something that is long-term or sustainable...”*

Participants also expressed a personal desire to preserve and protect our natural resources and to decrease our reliance on “foreign oil”, and they wanted to be aware of their energy footprint. In terms of energy efficiency on a community level, participants felt that many of their neighbors were unaware, uninformed, and lacked the resources required to really make a “difference”. One participant commented,

*“Those blue bins...you know the ones for recycling...the city is going to start dropping them off at everyone’s homes and I guarantee you most people don’t know what they are for...how to use it...what things can be recycled...or even why it suddenly has appeared at their house...there hasn’t been any information sharing...people just aren’t informed about things like that...”*

## Transition Questions

- *How would you describe the energy use/consumption in your household?*
  - i. *What do you think are the biggest “energy sucks” in your household?*
  - ii. *Are you aware of your usage? Do you monitor usage? If so how?*
  - iii. *Do feel like you can make/have made a conscience effort to reduce energy consumption/become more efficient? What has worked? What hasn’t worked? Why/why not?*
  - iv. *Have you ever heard of an “energy audit”? When you hear that term, what comes to mind? Would you participate in or think about participating in an “energy audit”... (be sure to define) Why or why not?*

Heating and air were considered to be the biggest energy “sucks” for all participants. Many participants discussed energy conservation measures that they had taken such as: unplugging all appliances, only using one light bulb in overhead fixtures, using lamps rather than overhead lighting, and hanging clothes on a clothes line rather than using the dryer. Most participants seemed aware of their usage and have tried to be conscious of their energy use. However, one participant who rents her home stated, “...it seems like no matter what I do the energy bill is high...too high...I am convinced that it is because of the house...”

About one half of the participants indicated that they were aware of EPB’s “energy audit” service, although none had taken advantage of it. Most felt that it would be an “...exercise in futility...’cause I know what needs to be done...I just can’t afford to do it...” For those participants who were unaware of energy audits, they seemed interested and thought it might be helpful, although the word “audit” did seem to present a negative connotation. One participant stated, “...audit just seems like a scary word...” A few participants indicated that they were suspicious of EPB’s motivation to help consumers save energy stating, “...they are in the business of selling energy...right...why would they want my bill to go down...” Another participant recalled a previous energy efficiency initiative stating, “...they came around and installed new/free energy saving storm windows...that turned out to be a scam...those windows were crap...”

## Key Questions

- *In Chattanooga, like many communities, lower-income households spend a greater percentage (piece) of their income on heating, cooling, and electricity than more affluent households.*
  - i. *Why do think that is the case?*
  - ii. *What might be some reasons/some motivations for saving energy?*
  - iii. *What do you believe are some potential or actual barriers to becoming more energy efficient/saving energy? What is preventing you from being able to save energy?*
  - iv. *What might be some ways that individuals who want to become more energy efficient could be supported/helped?*

This fact did not surprise any of the participants. Unilaterally, they all felt that the primary cause of this disproportionate energy use was due to the fact that the majority of the housing in lower income areas is sub-par, old, in disrepair, and/or *“...my landlords don’t care...they aren’t going to put that kind of money into my house...”*

Cost was the primary barrier identified by all participants. Additional barriers identified included lack of information, lack of access to resources, and a lack of knowledge/education regarding options and opportunities. A few participants identified “abuse of the system” as a potential barrier for those individuals who really needed assistance. One participant stated, *“...I am so tired of so and so down the street getting utilities assistance and all this free government help and here she comes driving up in a brand new SUV...they need to do a better job of finding out who is getting the help and who really NEEDS the help...”*

Access to more information and/or educational seminars, community meetings, informational sessions at Neighborhood Association (NA) meetings, information distributed via existing NA communication channels, better communication between community associations and energy providers and/or the city were all mentioned as possible ways to help support individuals and their neighborhoods.

Providing free labor/assistance and materials to residents was another suggestion. Several participants expressed the desire to encourage non-profits and businesses to provide/donate products (and the labor to install them) such as energy efficient light bulbs, weather stripping, insulation, etc. to the neighborhood associations for distribution throughout the neighborhood to those *“...who are the neediest of the needy...the elderly, the disabled or homebound...that kind of thing...we know who really, really needs the help...”*

## Ending Question

- *If you had the chance to implement one change to improve energy savings in your household, what would it be?*

For the participants who owned their home, the following were the most frequently mentioned desired improvements: New windows, high efficiency appliances, high efficiency HVAC system, attic and/or basement insulation, window and door insulation/weather stripping, high efficiency lighting, and alternative energy sources re: solar panels.

## Community Needs & Priorities

- *I’m also interested in learning more about energy use and safety in your community. Is there a relationship?*
- *In general, what do you believe are the greatest needs in your community?*

Not surprisingly, most participants agreed that YES, light=safety. All participants indicated that they appreciated the installation and upgrading of street lighting and indicated a need for more-especially in back alleys. *“The brighter our neighborhood the better...not only for safety, but for connecting with your neighbors... when it is bright...well lit... people*

*will go for walks after dinner...walk their dogs, talk with neighbors...be outside...get to know each other...all of those are good things for our neighborhood..."*

An increase in public transportation routes, better access to public transportation, the addition of / repair of neighborhood sidewalks, better monitoring of traffic and speeding, and increased opportunities and activities for young people during the summer and afterschool were all mentioned as community areas for improvement.

## Recommendations for Future Endeavors

### 1. Strive to strengthen collaborative partnerships within each community:

- Actively engage and incorporate existing neighborhood associations into future endeavors
- Utilize existing communication channels developed by each neighborhood association and other neighborhood based organizations to distribute and collect information
- Expand the gathering of qualitative data (e.g. focus groups, town hall type gatherings) to incorporate additional voices that reflect the demographic and socio-economic make-up of the neighborhoods, including representation from the Hispanic population

### 2. Further refine and focus proposed endeavors to meet the specific needs of each community:

- Utilize existing data, from multiple sources, to further inform programmatic decisions
- Investigate existing community-based programs and/or previous programs/projects
- Develop strategic programmatic plans unique to each community that reflect specific neighborhood needs

### 3. Further strengthen green|spaces' organizational structure to reflect both a corporate and a community focus

- Incorporate community leaders/stakeholders in an advisory or board capacity
- Strive to develop a leadership board which is reflective of the communities in which green|spaces operates

## Data Review & Resources

### Resulting Recommendations

The recommendations below result from a review of existing Ochs Center research and useful studies conducted by other individuals or organizations. Also, this review was aligned with focus group participant insights, in that focus group feedback was actively used to inform the data review and resource identification processes. Many of these recommendations mirror those from focus group feedback.

## *Community Knowledge*

As green|spaces seeks to both reduce energy consumption and holistically strengthen the neighborhoods of East Chattanooga, East Lake, and Highland Park, it is recommended that Empower planning and implementation teams establish and maintain a high-level of knowledge regarding the communities' characteristics and unique qualities. In addition to the importance of a nuanced understanding of the communities' energy consumption-related behaviors, opportunities, and barriers, it is important that the Empower team understand the diverse cultures and perspectives within the communities, as this understanding is necessary to stimulate sustainable change. The information in the following sections helps to characterize these neighborhoods. Also, it is recommended that ongoing, real-time information gathering on community priorities and initiative challenges be maintained through collaboration and partnership with community leadership and stakeholders (e.g. an advisory board or committee populated with community members).

## *Engagement & Outreach*

Some focus group participants indicated that communicating green|spaces' mission to communities may be a challenge. Not all residents in target neighborhoods have access to email, and many would not be inclined to respond to mail or email notifications. This communication barrier, combined with a general skepticism toward utility companies' motives (also revealed in focus groups), suggests that a community organizing model will be essential for promoting participation, and "peer to peer" outreach should be the most effective way to overcome communication barriers.<sup>1</sup> Each target neighborhood has at least one community organization (listed later in this report) with defined community leaders. Faith-based institutions and other local non-profits are also other potential engagement and outreach partners.

## *Overcoming Financial Barriers*

Though most focus group participants are aware of how they could reduce energy consumption and know that such measures would benefit them financially and otherwise in the long term, many stated that the initial investment was too expensive to pursue. However, there may be opportunities to reduce the financial burden for homeowners and change behaviors related to energy consumption through partnerships.

Also, providing hard data with real dollar amounts could further incentivize residents to take action (Highland Park focus group participants recommended concrete examples and case studies), and numerous studies have calculated savings resulting from different home upgrades based on the age and type of home affected.<sup>2</sup> Working alone, green|spaces will be limited in its ability to affect change. As stated previously, peer to peer communication may be critical for the

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<sup>1</sup>Madrid and James, "Power for the people: overcoming barriers to energy efficiency for low-income families" : study cites multiple Lawrence Berkeley National Laboratory case studies, noting "a pervasive sense of mistrust among low-income families toward their utility company and its representatives, and toward individuals selling energy-efficiency services – what Lawrence Berkeley Labs calls "a lack of trusted messengers."

<sup>2</sup> See Schweitzer and Tonn, "Non-energy benefits of the US Weatherization Assistance Program" and the 2010 Ochs Center report, "Energy efficiency as an alternative strategy for the Power4Georgians EMCs."

Empower program's success, and research suggests that cross-household feedback and comparison can impact energy consumption behavior.<sup>3</sup> In other words, if green|spaces can have some initial success retrofitting homes, those homeowners may become advocates that neighbors would be more apt to trust and respond to.

Overcoming financial barriers may be challenging, especially since green|spaces is targeting low-income neighborhoods, but there are services designed to supplement low-income households. Two East Lake focus group participants reported significant monthly savings from HVAC improvements purchased with CNE low interest to zero interest loans, and the Tennessee Weatherization Assistance Program, operated through the South East Tennessee Human Resource Agency, provides grants for low-income households, with young children, elderly, and disabled residents given priority. Case studies have also shown that group discounts can lead to greater participation (Highland Park focus group idea: *"create economy of scale for discounts"*).

### ***Marketing and Measuring Co-Benefits***

green|spaces believes that improving energy efficiency will have a positive effect on other measures of quality of life, and their assertion is well founded. When marketing the Empower initiative, it will be important to highlight the environmental and societal benefits of energy efficiency. Focusing only on financial benefits can backfire if immediate savings are minimal. Besides, focus group participants indicated that they were interested in more than just money. Some cited geopolitical reasons and others were interested in societal benefits. There is a variety of research related to the co-benefits of energy efficiency, showing benefits to residents, utilities, the environment, and society as a whole. Measuring these co-benefits may prove difficult but will nonetheless be necessary, given the scope of green|spaces' grant. Previous research may be useful in this regard, and surveying the community throughout the duration of the program should be a priority.

### ***Community Dialogue & Feedback Loops***

The success of an initiative that seeks to promote investment in energy efficiency solutions and related behavior changes will rely on effective, ongoing, and sincere communication with the residents. To allow real-time revision to initiative strategies and programmatic offerings, it is important to establish feedback loops to ensure that planning and implementation teams are receiving meaningful feedback regarding initiative effectiveness. Periodic surveying, focus groups, and community-based advisory groups are all methods to establish and maintain dialogue and feedback loops.

### ***Relevant Existing Data & Information***

To promote process efficiency, this section details data and findings from existing reports and studies authored by the Ochs Center that may be relevant to the Empower initiative. This section also includes insights from useful, publicly

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<sup>3</sup> T. Dillahunt, "Communication around home energy monitoring devices"

available reports and studies by other individual authors and organizations. The referenced reports and studies are listed in reverse chronological order.

### ***State of the Chattanooga Region Report: Demographics 2014***

The State of the Chattanooga Region Reports are comprehensive studies focused on themes associated with quality of life in and around the city. The 2014 Demographics report includes recent poverty and education snapshots. Some important points related to green|spaces' target neighborhoods include:

- Between 2000 and 2010, East Lake, Highland Park, and N. Brainerd saw the white population decrease over 25%
- Hispanics tend to settle in southern part of urban core: Highland Park (25.7%) East Lake (17.3%)
- Owner occupied homes can have a stabilizing effect on communities
- Glenwood and Highland Park are residential areas with low levels of owner occupied housing
- Stabilize areas by encouraging homeownership by creating a pool of invested community members
- % of single parent homes: East Chattanooga (76.7), East Lake (64.2), Highland Park (56.8)
- % in labor force: East Chattanooga (55.5), East Lake (60.7), Highland Park (62.2)

### ***State of the Chattanooga Region Report: Health 2013***

This state of the region report offers a recent and comprehensive assessment of health statistics in the region. Notable themes are as follows:

- African Americans have substantially lower life expectancies than whites in Hamilton County
- Strong correlation between poverty and obesity
- Infant mortality "exceptionally high" among African Americans
- In 2010, 81.6% of African American babies were born to single mothers in Hamilton County

### ***Comprehensive Gang Assessment 2012***

The Ochs Center's 2012 Gang Assessment offers a comprehensive overview of gangs in Chattanooga, but also includes some other data relevant to green|spaces' target neighborhoods:

- Unemployment rate among high school graduates in East Chattanooga: 32.6%
- Highland Park: 982 housing units, 33% owner occupied, 67% renters, 19% vacant
- Glass Street: 1,449 units, 27.6% owners, 72.4% renters, 21.8% vacant
- Highland Park's population was 34% Hispanic in 2012
- 7.7% of employed people in Highland Park use public transportation to get to work, 3.4% in Glass Street

### ***Chattanooga Neighborhood Assessment (Schubert, 2011)***

Michael Schubert's neighborhood assessment documents conditions in East Chattanooga and East Lake but does not include Highland Park. The main points relevant to g|s purposes are as follows:

- Chattanooga as a whole saw a decline in property values between 2004 and 2010 of 0.4%. However, East Chattanooga saw a property value decline of 44% and 49% for East Lake.
- Chattanooga's homeownership rate declined 3.4% between 2004 and 2010. In East Chattanooga and East Lake, homeownership declined 8.9% and 8.5% respectively.
- Property tax delinquency rate was 7.7% in Chattanooga in 2010, but 11.7% in East Lake and 20.6% in East Chattanooga.
- All of these indicators suggest a weak demand for homeownership in East Lake and East Chattanooga.
- East Chattanooga residents made more 311 calls per 100 residents (12.1) than any other neighborhood in Chattanooga, suggesting a high number of residents taking action to improve their neighborhood; This number was lower in East Lake (5.0)
- This report found that there are strong neighborhood leaders emerging in East Lake.
- Finding a way to communicate with residents and promoting positive neighborhood images will be critical for neighborhood improvement.

East Lake and East Chattanooga were both classified by Schubert as "Stable/Declining Neighborhoods"..."have many positives, but unless these neighborhoods strengthen their housing markets and the social connections within them, they will be vulnerable to further decline."

### ***East Chattanooga Neighborhood and Park Assessment (2010)***

In 2010, Ochs produced a brief report on conditions in East Chattanooga for a client, including parent and child focus groups in East and South Chattanooga, a review of East Chattanooga land use plans, and park assessments. The main points are as follows:

- These areas have high incidence of diabetes, heart attack, and stroke, and nearly double incidence of overweight and obese people
- Over 65% of residents in E. Chattanooga are overweight or obese (2007 Behavioral Risk Factor Surveillance Survey)
- Better access to parks and playgrounds can lead to 25.6% increase in exercise (CDC)
- 44 acres of open space in E. Chattanooga (2 acres per 1,000 residents)
- Hamilton County averages 70 acres per 1,000 residents (SOCRR Environment)
- Focus groups indicate that public safety concerns further inhibit access to parks
- Focus groups indicate that parks in East Chattanooga are geared to organized sports; not enough open space
- Assessment of Riverside Playground: "not useable"
- 40% of E. Chattanooga residents received SNAP benefits in 2009; poor access to affordable, healthy food.
- East Chattanooga: largest, most densely populated neighborhood in Hamilton County without a grocery store.

### ***State of the Chattanooga Region Report: Public Safety 2010***

This regional report includes crime statistics listed by sub-region beginning on page 24. Some notable points regarding green|spaces' target neighborhoods are as follows:

- Ridgedale/Oak Grove/Clifton Hills, Bushtown/Highland Park, South Chattanooga, Downtown, and Amnicola/E. Chattanooga account for 14.2% of county population, but 40% of robberies, 41% of aggravated assault, 31% burglary/vandalism, and 40% of drug offenses.
- Amnicola/East Chattanooga, Ridgedale/Oak Grove/Clifton Hills, Glenwood/East Dale, and Bushtown/Highland Park account for nearly 25% of all inmates released from prison back to communities in Hamilton County in 08' and 09'

### ***State of the Chattanooga Region Report: Housing 2010***

The 2010 SOCRR: Housing report offers data related to housing characteristics, like lending, foreclosures, population changes, building permit activity, etc. The main points related to target neighborhoods are as follows:

- From 2000-2010, Highland Park and East Chattanooga had the lowest increase in occupied housing of all Chattanooga subregions
- Foreclosures 2006-2009: East Chattanooga – 221, Highland Park – 163
- 37.9 % of loans were subprime in East Chattanooga between 2004-2008; Highland Park (33.1%)
- East Chattanooga and Highland Park had the two highest number of 311 complaint calls related to housing or overgrowth

### ***A Strategic Assessment of Health and Related Conditions in the Region 2010***

Ochs conducted a regional health assessment for a client which found that disparities between African Americans and whites in Hamilton County is alarming, with the worst health outcomes occurring in inner city Chattanooga

### ***Energy Efficiency as an Alternative Strategy for the Power 4 Georgians EMCs (2010)***

As part of this study, Ochs cited a 2009 report titled "Energy Efficiency: Georgia's Highest Priority" conducted by Southface Energy Institute, which outlined "potential cost and energy savings from applying energy efficiency measures to single family residences in the state of Georgia. The report also includes:

- Calculated cost and potential savings from installing these measures based on the age of the home (see table 3)
- Estimated cost of installing energy efficient measures by age of housing unit (see table 6)
- Peak load reductions (see table 5)

### ***Cohort II Neighborhood Surveys 2009***

In 2008 and 2009, Ochs conducted surveys in Churchville, Glenwood, and Orchard Knob to gather public perceptions of these neighborhoods by people who reside in them. The report includes raw data from surveys in the appendices. Though these neighborhoods are not specifically targeted by green|spaces, they are all directly adjacent to target neighborhoods, and may provide useful insights:

- Social capital relatively strong in all 3 neighborhoods
- Crime and public safety by far the biggest concern
- Other primary concerns: safe playgrounds, lighting, maintenance, and concerns about neighbors
- Churchville faces greatest challenges: lower ratings than other two neighborhoods (only 10% believed it was a “great place to live” in 2008)
- Orchard Knob and Glenwood showed considerable neighborhood pride

### ***STAND Community Questionnaire (2009)***

This survey included 4 open ended questions related to community needs administered to 26,000 Chattanooga residents. Three major themes from the survey emerged:

- Natural Environment: “respondents treasure the area’s natural beauty, but are concerned about pollution and cleanliness.”
- Respondents were worried about issues related to human capital (education, crime, and jobs)
- Traffic, road conditions, and growth were important issues for Chattanooga residents

### ***Food Access and Price: a spatial analysis of grocery stores and food prices in the City of Chattanooga and Hamilton County (2009)***

In 2009, the Ochs Center conducted an independent study, comparing food access and prices among different Chattanooga neighborhoods and sub-regions. Key findings, as they relate to green|spaces target neighborhoods include:

- “Residents of South Chattanooga, East Chattanooga, and Downtown have frequently cited the lack of grocery stores, inefficient public transportation, and food affordability as having an impact on their food choices.”
- Many low income families travel outside of neighborhoods to use food stamps at supermarkets, effectively paying a “food tax”
- Bushtown/Highland Park and East Chattanooga had no grocery stores or supermarkets as of 2009
- Average distance to grocery store for residents in East Chattanooga: 1.48 miles.
- 85 grocery and corner stores surveyed (see table 4): price for fruits and vegetables 41% higher at corner stores; dairy products were 29% higher; bread 32% higher

### ***State of the Chattanooga Region Report: Environment 2008***

The 2008 SOCRR: Environment report provides data related to environmental concerns in different Chattanooga neighborhoods and sub-regions. This report also includes a survey of Chattanooga residents’ opinions on the importance of environmental conservation. The main points are as follows:

- Amnicola/East Chattanooga and South Chattanooga had the highest number of permits for air emissions in the county.

- 82.7% of Chattanooga residents believed clean air was “very important” to quality of life and 61% believed parks and recreation was very important (survey of 1000 Chattanooga residents – 2008)
- Chattanooga region: 12<sup>th</sup> worst per capita greenhouse gas emissions out of 100 largest metropolitan areas in the United States (Brookings Institute)
- Residential electricity use increased 11.5% from 2000-2005, carbon emissions increased 2.4% during the same period.
- Less than 1% of Hamilton County residents use public transportation

***Results from American Community Survey 2008-2012***

The American Community Survey provides data by zip code, including housing statistics. This information highlights the differences in housing conditions for the target neighborhoods. Please note however that these statistics are not neighborhood specific, but rather, sorted by zip code. In particular, 37404 covers a large area, encompassing many neighborhoods.

Neighborhood by Zip Code	Percent of homes built 1939 or earlier	Percent of owner occupied homes	Median home value
East Chattanooga (37406)	21.2%	47.4%	\$86,900
Highland Park (37404)	44.4%	46.9%	\$98,700
East Lake (37407)	32.0%	39.9%	\$54,900

Neighborhood by Zip Code	House heating fuel	Owners spending more than 35% of income each month on home (mortgage)	Renters spending more than 35% of income each month on rent
East Chattanooga (37406)	Electricity: 88.2% Utility Gas: 7.7%	35.6%	54.1%
Highland Park (37404)	Electricity: 69.9% Utility Gas: 25.7%	40.1%	52.3%
East Lake (37407)	Electricity: 81.4% Utility Gas: 15.1%	43.7%	60.3%

***Environmental Issues in the Chattanooga Region 2006***

The Community Research Council (Ochs’s predecessor) conducted a study in 2006 on the relationship between the environment and quality of life in and around Chattanooga. This study is dated but has been included because the client that commissioned it had a two part plan that bares similarities to the “Empower” initiative:

1. “Promote public efforts at conservation and green space creation...”
2. “Support public knowledge about and cultivate public will for environmentally friendly policy and practices through education and advocacy.”

This report confirms green|space’s findings regarding the concentration of environmental problems in Chattanooga’s low-income neighborhoods (see EPA map of environmental risks in Hamilton County). It also includes a public opinion survey related to environmental concerns and quality of life. Results of the survey are as follows:

- 79% said clean streets and neighborhoods were “very important”
- 78% indicated that clean air was “very important”
- 56% indicated that parks and outdoor recreation was important to quality of life

### ***Neighborhood and Community Development in Chattanooga 2006***

In 2006 the Community Research Council generated a report for a client that includes data from community focus groups and roundtable discussions with economic development organizations and community development groups. The report documents the lack of traditional finance for housing and business development, the lack of traditional banking services vs. the overabundance of alternative financial services (pawn shops, check cashers), and lack of supermarkets in target neighborhoods.

### **Existing Neighborhood Associations and Potential Partner Organizations**

The following neighborhood associations and organizations may be potential partners for the Empower initiative.

#### ***East Chattanooga Improvement, Inc.***

ECI, Inc. is comprised of 5 Committees, each with its own chairperson

- Economic Development: Joe del Valle (joe.delvalle@grubb-ellis.com)
- Health: Mildred Moreland (mildrednurse@yahoo.com)
- Housing: James Moreland (ejm@vol.com)
- Public Safety: Gloria McClendon (gmclendon10@comcast.net)
- Youth: Dana Kinamore (dkinamo1@gmail.com)

There are 9 neighborhood associations in the ECI network. The East Chattanooga/Glass Farms associations meet monthly every 2<sup>nd</sup> Tuesday, 6PM at Community Christ Ministry – President: Etta Kanipes

#### ***Highland Park Neighborhood Association***

1714 Duncan Avenue, (423) 698-2965

Michael Wilson, President

### *East Lake Neighborhood Association*

709 S. Greenwood Avenue, (423) 624-4757

Contact [www.GirlsIncofChatt.org](http://www.GirlsIncofChatt.org) to email East Lake Neighborhood Association

Quarterly Neighborhood Newsletter: could be useful for green|spaces outreach

### *Chattanooga Neighborhood Enterprise (CNE)*

Focus group participants had used CNE loans for home improvement related to energy efficiency.

Jennifer Holder, Communications and Special Projects Manager, [jholder@cnelnc.org](mailto:jholder@cnelnc.org), (423)756-6234

### *South East Tennessee Human Resource Agency*

Weatherization Assistance (WAP) in Tennessee is run by SETHRA

(423) 949-2191, Bill Harmon, executive director

### *Habitat for Humanity Chattanooga*

Habitat has been partnering with other organizations in cities across the country for energy efficient home upgrades (see case studies):

- <http://www.habitatphiladelphia.org/updates/habitat-partners-help-you-weatherize-your-home>
- [http://www.carolinehabitat.org/Caroline\\_Habitat\\_for\\_Humanity/Energy\\_Upgrades.html](http://www.carolinehabitat.org/Caroline_Habitat_for_Humanity/Energy_Upgrades.html)

David Butler, Executive Director ([director@habichatt.org](mailto:director@habichatt.org)) (423)756-0507

### **Limited Literature Review**

The Ochs Team conducted a limited review of studies, articles, and secondary research, as listed below, that may be useful for Empower planning and implementation purposes.

#### **Evaluating the co-benefits of low-income energy efficiency programmes (Heffner and Campbell, 2011)**

This report was prepared for the International Energy Agency's fuel poverty workshops in 2011. It includes recent data and explains why energy efficiency benefits all stakeholders in communities.

- Energy efficiency improvements may not be practical for "hard to treat" residences.

- Energy savings alone can be modest, but co-benefits are numerous – reducing government and energy provider outlays and social tariffs.
- 6 million homes have been weatherized over three decades using WAP
- *Developing program evaluations that consider co-benefits can be critical for budgeting and fundraising in the future.*
- Non-energy co-benefits (*see figure 2*)
- ***Must be able to measure co-benefits for future success: collect data and develop estimation models***
- “Non-energy co-benefits add as much as three times the benefits of direct energy savings to participants.”
- “Most co-benefits accrue to participants, with another one-third benefiting society.”
- Benefits to government and energy providers (*see page 14*)
- Direct economic benefits alone often prove sufficient to justify program
- Health, quality of life, and community related co-benefits (*beginning on page 16*)

**Non-energy benefits of the US Weatherization Assistance Program: a summary of their scope and magnitude (Schweitzer and Tonn, 2002)**

A comprehensive review of previously reported findings related to non-energy benefits, this report identifies monetary values for each co-benefit (co-benefits often assumed but difficult to measure).

- The total lifetime value of non-energy benefits alone from weatherizing a home was found to be \$3346 (in 2001 dollars) per household, which is substantially higher than the total cost per low-income weatherization.
- Societal benefits were found to be much larger than either ratepayer or household benefits.
- The total estimated value of non-energy benefits are slightly greater than the value of energy savings over the lifetime of the weatherization measures installed.

**It’s Not All About “Green”: Energy Use in Low-Income Communities (Dillahunt et al. 2009)**

This study is based on interviews with low-income households in “two very different locations” (a small town in the Southern U.S. and a northerly metropolitan area.)

- “Without knowledge of the motivations and barriers affecting energy conservation, interventions will be less effective, and even programs that attempt to reach out to this community will fail to engage a large segment of the population.”
- Saving money is only one of many motivations for reducing energy consumption in low-income households. Participants, even ones who did not pay for their energy, were motivated by habit, spirituality, and concern for future generations as much as by money and comfort.
- Low income individuals reported more diverse and creative strategies for saving energy than affluent individuals.
- “Low income households tend to make life-style cutbacks rather than investing in increased energy efficiency. Tax credits for green home improvements may not help because households may not pay enough tax to be able to claim credits.”

- Helping residents calculate potential energy savings from investing in energy efficient measures would be very valuable. (refer to Schweitzer and Tonn above for estimated savings)

**Power for the People: Overcoming Barriers to Energy Efficiency for Low-Income Families (Madrid and James, 2012)**

This paper identifies barriers and offers solutions for weatherization in low-income communities.

- Only a small portion of low-income homes that qualify for weatherization assistance have been retrofitted. 3 primary reasons: initial costs, lack of information, lack of demand.
- 2011 saw the fifth consecutive yearly increase above inflation rate for average household electricity spending.
- Case studies have found a “pervasive sense of mistrust among low-income families toward their utility company and its representatives, and toward individuals selling energy efficiency services.” **(green|spaces focus groups have confirmed this sentiment from several participants)**
- In 2010, WAP saved low income families \$2.1 billion, including an average of \$437 on heating and cooling alone for individual households.
- “Communication breakdown between the people who need these services and the companies or nonprofit agencies that can provide them: information and outreach gap resulting from insufficient or ineffective marketing, an intimidating or complex application process, or general distrust of solicitations from utilities or others.”
- Successful intervention programs often use a community organizing model – “engaging established community leaders and existing social infrastructure such as a church group, parent-teacher association, or other nonprofit organization, and relying on peer-to-peer outreach.”
- Many successful programs have bundled demand – “10 or more homes in one neighborhood to leverage project agreements with utilities or independent contractors. These bundled contracts can include clauses like local-hire and workforce training agreements.” **(East Lake focus group participants recommended workforce training as a desirable outcome.)**

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Grayson Heffner and Nina Campbell, “Evaluating the co-benefits of low-income energy-efficiency programmes” *International Energy Agency* 2011.

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Tawanna Dillahunt, "Communication around home-energy monitoring devices: connecting stakeholders in low-income communities" *Proceedings of the 11<sup>th</sup> International Conference on Ubiquitous Computing* 503-506 (2011)

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"[Client Report]: research in support of strategic planning" *Ochs Center for Metropolitan Studies* (2009)

"Neighborhood and community development in Chattanooga: an analysis for [Client]" *Community Research Council* (2006)

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"Food access and price: a spatial analysis of grocery stores and food prices in the City of Chattanooga and Hamilton County" *Ochs Center for Metropolitan Studies* (2009)

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# Empower

CHATTANOOGA

## Appendix D

Utility Methodology Forms



**GEORGETOWN UNIVERSITY**  
**ENERGY PRIZE**

**ENERGY DATA COLLECTION INFORMATION**

*The following form is an adaptation of the optional attachment many communities submitted along with their Application utility commitment letters. The purpose of this form during the Quarterfinals (August – November 2014) is to gather data that will help communities, utilities and the Georgetown University Energy Prize (GUEP) team to standardize data collection procedures for all competing communities prior to the January 2015 start of data collection.*

Community Name: Chattanooga, TN

Utility Name: Chattanooga Gas

Utility Type (check one):

- Investor Owned
- Municipally Owned
- Co-op

Energy Type (check all that apply):

- Gas
- Electricity

The community and utility understand that, during the two-year energy competition (Semifinals), the utility must report at least quarterly to GUEP the total (aggregate) monthly energy directly supplied to all of their residential and municipal customers.

Aggregate data will be reported separately for the residential and municipal sectors. A given month's aggregate energy use is defined as the total of the energy billed during that month.

The quarterly reports are due within 45 days of the quarter's end. When submitting the first quarterly report, the utility must also report the community's baseline energy use: the monthly aggregate residential and monthly aggregate municipal energy supplied during the 24 months prior to the start of the Semifinals.



**ENERGY DATA COLLECTION INFORMATION**

**1 Identifying Contributors to the Residential and Municipal Aggregate Energy Usage**

**1.1 Identifying Accounts or Addresses within the Municipality**

Utility is be able to identify properties served in the municipality, with at least 95% accuracy, by these methods [*check all that could be used*]:

<input type="checkbox"/>	Identify by selecting for municipality name in service addresses
<input type="checkbox"/>	Identify by Zip Codes
<input type="checkbox"/>	Identify by Tax Districts
<input checked="" type="checkbox"/>	Other Identification Method(s) – [ <i>please describe</i> ] <b>Franchise District in CIS</b>

Comments: [*insert any comments, e.g., about concerns regarding difficulty or reliability*]

N/A

**1.2 Identifying Residential Accounts or Addresses**

Given the properties selected via 1.1 (above), Utility will be able identify residential properties by these methods [*check all that could be used*]:

<input checked="" type="checkbox"/>	Identify by billing rate class
<input type="checkbox"/>	Identify by other database field [ <i>please describe</i> ]
<input type="checkbox"/>	Other identification method(s) – [ <i>please describe</i> ]



### ENERGY DATA COLLECTION INFORMATION

Will all energy consumption by multi-unit residential apartment buildings or complexes be included?

<input checked="" type="checkbox"/>	Yes (all energy consumption will be included)
<input type="checkbox"/>	No – <i>[please describe any problems, estimate the significance, and propose a solution]</i>

Additional Comments: *[insert any other comments, e.g., about concerns regarding difficulty or reliability]*

We will be able to provide this data.



## ENERGY DATA COLLECTION INFORMATION

### 1.3 Identifying Municipal Accounts or Addresses

Given the GUEP's definition of municipal energy use, as described in the Competition Guidelines ([guel.georgetown.edu/rules-timeline](http://guel.georgetown.edu/rules-timeline)), Utility will be able to identify all contributors to the municipal energy use by these methods [*check all that could be used*]:

<input type="checkbox"/>	Identify by enumeration of relevant accounts, given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant service agreements (SAIDs), given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant service addresses, given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant meters given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by billing rate class
<input checked="" type="checkbox"/>	Other identification method(s) – [please describe] All municipal accounts notated as government account in CIS



**ENERGY DATA COLLECTION INFORMATION**

**2 Computing Aggregate Energy Usage**

Utility will need to report to GUEP the aggregate residential and (separately) the aggregate municipal energy uses, as well as the number of contributors to the aggregates. Given the residential and municipal property identification methods discussed above in 1.0, Utility would be able to compute the aggregates based on information from *[check all that could be used]*:

<input checked="" type="checkbox"/>	Energy use meters
<input type="checkbox"/>	Energy use bills
<input checked="" type="checkbox"/>	Energy use accounts
<input type="checkbox"/>	Energy use service agreements (SAIDs)
<input type="checkbox"/>	Other Identification Method(s) – <i>[please describe]</i>

Comments: *[insert any comments, e.g., about concerns regarding difficulty or reliability]*

We would use the monthly meter reading data for each meter on the specific accc





## ENERGY DATA COLLECTION INFORMATION

### 3 Special Circumstances

This section addresses circumstances that may complicate energy data collection in some communities.

#### 3.1 Fuel Switching Programs

Is there likely to be a significant amount of “fuel switching” during the competition – i.e., switching from fuel oil or propane to gas or electricity?

<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	<p>Yes – <i>[please describe and estimate the extent of likely fuel switching]</i></p> <p>It is very likely that we will have new customers switching from fuel oil or propane to natural gas over the next two years.</p>

Will the fuel-switching coincide with the installation of new gas or electric service or meter?

<input type="checkbox"/>	No (There won't be any new service lines or newly installed meters – additional gas or electric energy will be delivered via an existing service)
<input checked="" type="checkbox"/>	Yes – (New gas or electric service with new metering will be installed)

Comments: *[insert any comments, e.g., about concerns regarding difficulty or reliability]*

If the premise was not previously served we will have to add a new service and met



## ENERGY DATA COLLECTION INFORMATION

### 3.2 Renewable Energy Installations

Are there likely to be significant installations of renewable energy sources during the competition (e.g., residential rooftop solar panels)?

<input type="checkbox"/>	No
<input checked="" type="checkbox"/>	Yes – <i>[please describe and estimate the likely extent]</i> Chattanooga Gas doesn't expect to loose any accounts due to solar panels. We have been adding customers that have been converting from fuel oil and propane. With natural gas costs at historic lows we anticipate this will continue for the foreseeable future. Natural gas is the cleanest burning fossil fuel and converting from other fossil fuels to natural gas is reducing carbon emissions.

Will the installed renewable energy sources reduce the amount of gas or electricity that is delivered to residential and municipal accounts by utilities? For example, residential rooftop solar panels typically reduce the amount of utility-delivered electricity, but a community field of solar panels might be handled differently.

<input type="checkbox"/>	Yes (consumption from utilities will be reduced)
<input checked="" type="checkbox"/>	No – <i>[please explain]</i> It is very unlikely that a natural gas customer will change to another fuel source. The cost of natural gas is at historic lows and projected to remain at these levels for the foreseeable future. We anticipate 4-5% growth in our customer base over the next two years. As our customer base grows so does the consumption even though many customers are replacing older appliances with more efficient units (examples, 40 gallon tank water heater replaced by tankless water heater of 84% efficient furnace replaced by 93% efficient unit). Natural gas is the cleanest burning fossil fuel and converting from other fossil fuels to natural gas is reducing carbon emissions.



## ENERGY DATA COLLECTION INFORMATION

*The following form is an adaptation of the optional attachment many communities submitted along with their Application utility commitment letters. The purpose of this form during the Quarterfinals (August – November 2014) is to gather data that will help communities, utilities and the Georgetown University Energy Prize (GUEP) team to standardize data collection procedures for all competing communities prior to the January 2015 start of data collection.*

Community Name: Chattanooga

Utility Name: EPB

Utility Type (check one):

- Investor Owned
- Municipally Owned
- Co-op

Energy Type (check all that apply):

- Gas
- Electricity

The community and utility understand that, during the two-year energy competition (Semifinals), the utility must report at least quarterly to GUEP the total (aggregate) monthly energy directly supplied to all of their residential and municipal customers.

Aggregate data will be reported separately for the residential and municipal sectors. A given month's aggregate energy use is defined as the total of the energy billed during that month.

The quarterly reports are due within 45 days of the quarter's end. When submitting the first quarterly report, the utility must also report the community's baseline energy use: the monthly aggregate residential and monthly aggregate municipal energy supplied during the 24 months prior to the start of the Semifinals.



## ENERGY DATA COLLECTION INFORMATION

### 1 Identifying Contributors to the Residential and Municipal Aggregate Energy Usage

#### 1.1 Identifying Accounts or Addresses within the Municipality

Utility is be able to identify properties served in the municipality, with at least 95% accuracy, by these methods [*check all that could be used*]:

<input type="checkbox"/>	Identify by selecting for municipality name in service addresses
<input type="checkbox"/>	Identify by Zip Codes
<input checked="" type="checkbox"/>	Identify by Tax Districts
<input type="checkbox"/>	Other Identification Method(s) – [ <i>please describe</i> ]

Comments: [*insert any comments, e.g., about concerns regarding difficulty or reliability*]

#### 1.2 Identifying Residential Accounts or Addresses

Given the properties selected via 1.1 (above), Utility will be able identify residential properties by these methods [*check all that could be used*]:

<input checked="" type="checkbox"/>	Identify by billing rate class
<input type="checkbox"/>	Identify by other database field [ <i>please describe</i> ]
<input type="checkbox"/>	Other identification method(s) – [ <i>please describe</i> ]



GEORGETOWN UNIVERSITY  
ENERGY PRIZE

**ENERGY DATA COLLECTION INFORMATION**

Will all energy consumption by multi-unit residential apartment buildings or complexes be included?

<input checked="" type="checkbox"/>	Yes (all energy consumption will be included)
<input type="checkbox"/>	No – <i>[please describe any problems, estimate the significance, and propose a solution]</i>

Additional Comments: *[insert any other comments, e.g., about concerns regarding difficulty or reliability]*

Only exception is if units not individually metered & commercial building owner pays bill



## ENERGY DATA COLLECTION INFORMATION

### 1.3 Identifying Municipal Accounts or Addresses

Given the GUEP's definition of municipal energy use, as described in the Competition Guidelines ([guel.georgetown.edu/rules-timeline](http://guel.georgetown.edu/rules-timeline)), Utility will be able to identify all contributors to the municipal energy use by these methods [*check all that could be used*]:

<input checked="" type="checkbox"/>	Identify by enumeration of relevant accounts, given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant service agreements (SAIDs), given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant service addresses, given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by enumeration of relevant meters given that the community provides a reliable list of contributors
<input type="checkbox"/>	Identify by billing rate class
<input checked="" type="checkbox"/>	Other identification method(s) – [ <i>please describe</i> ] Our system has a CIS number for entities with multiple accounts. We can use that either along with or as a cross check for the enumeration of relevant accounts.



GEORGETOWN UNIVERSITY  
ENERGY PRIZE

**ENERGY DATA COLLECTION INFORMATION**

**2 Computing Aggregate Energy Usage**

Utility will need to report to GUEP the aggregate residential and (separately) the aggregate municipal energy uses, as well as the number of contributors to the aggregates. Given the residential and municipal property identification methods discussed above in 1.0, Utility would be able to compute the aggregates based on information from *[check all that could be used]*:

<input checked="" type="checkbox"/>	Energy use meters
<input checked="" type="checkbox"/>	Energy use bills
<input type="checkbox"/>	Energy use accounts
<input type="checkbox"/>	Energy use service agreements (SAIDs)
<input type="checkbox"/>	Other Identification Method(s) - <i>[please describe]</i>

Comments: *[insert any comments, e.g., about concerns regarding difficulty or reliability]*

Bill level is likely preferred, more time consuming to do at the meter level.



**ENERGY DATA COLLECTION INFORMATION**

**3 Special Circumstances**

This section addresses circumstances that may complicate energy data collection in some communities.

**3.1 Fuel Switching Programs**

Is there likely to be a significant amount of “fuel switching” during the competition – i.e., switching from fuel oil or propane to gas or electricity?

<input checked="" type="checkbox"/>	No
<input type="checkbox"/>	Yes – <i>[please describe and estimate the extent of likely fuel switching]</i>

Will the fuel-switching coincide with the installation of new gas or electric service or meter?

<input checked="" type="checkbox"/>	No (There won't be any new service lines or newly installed meters – additional gas or electric energy will be delivered via an existing service)
<input type="checkbox"/>	Yes – (New gas or electric service with new metering will be installed)

Comments: *[insert any comments, e.g., about concerns regarding difficulty or reliability]*

No programs and nothing expected beyond normal customer changes.



## ENERGY DATA COLLECTION INFORMATION

### 3.2 Renewable Energy Installations

Are there likely to be significant installations of renewable energy sources during the competition (e.g., residential rooftop solar panels)?

<input checked="" type="checkbox"/>	No
<input type="checkbox"/>	Yes – <i>[please describe and estimate the likely extent]</i> Explanation for the 'No' answer: Given current adoption rates we don't expect significant growth in renewable installations during the time period of the GUEP.

Will the installed renewable energy sources reduce the amount of gas or electricity that is delivered to residential and municipal accounts by utilities? For example, residential rooftop solar panels typically reduce the amount of utility-delivered electricity, but a community field of solar panels might be handled differently.

<input type="checkbox"/>	Yes (consumption from utilities will be reduced)
<input type="checkbox"/>	No – <i>[please explain]</i>



# Empower

CHATTANOOGA

## Appendix D

Utility Methodology Forms

GEORGETOWN UNIVERSITY  
ENERGY PRIZE

LETTER OF SUPPORT  
MUNICIPAL OFFICIAL

Mayor Andy Berke (name of "Municipal Official"), through this letter of commitment, express my support of Chattanooga's (name of "Community") effort to compete in the Georgetown University Energy Prize ("GUEP").

I will, to the extent possible, support other municipal officials and staff, work with stakeholders, speak to the public and the press, and otherwise engage our residents in energy savings efforts.

I understand that, if our community receives a monetary award from the GUEP, green | spaces (name of "Entity") will be the recipient of the funds and will be required to use those funds to the benefit of the whole community, as described in the Competition Guidelines.

By:  5/28/2014  
(date)

Andy Berke (Name of Official) Mayor (Title)  
City of Chattanooga (Organization)  
101 East 11th St (Street Address)  
Chattanooga, TN 37404 (City, State Zipcode)

GEORGETOWN UNIVERSITY  
ENERGY PRIZE

LETTER OF SUPPORT  
UTILITY

Chattanooga Gas Co. (name of "Utility"), through this letter of commitment, expresses its support of Chattanooga, TN's (name of "Community") effort to compete in the Georgetown University Energy Prize ("GUEP") and its commitment to provide timely, accurate, energy data as required by the Competition Guidelines (see [guep.georgetown.edu/rules-timeline](http://guep.georgetown.edu/rules-timeline)).

Utility provides the following energy services to the below types of customers within the Community (check all that apply):

- Electric  Residential Customers  
 Natural Gas  Municipal Customers

Utility will support Community's GUEP effort by providing the Georgetown University Energy Prize, quarterly, with the total (aggregate) monthly energy directly supplied by natural gas and electric utilities to all of their residential and municipal customers in the community, as well as the current number of residential accounts. Aggregate data will be reported separately for the residential and municipal sectors.

Utility will work with Community to comply with all current and future energy data requirements in the Competition Guidelines. Georgetown University is working with our partners and communities in the Letter of Intent Program to ensure that data requirements are as simple as possible, however, it is ultimately the Community and the Utility's responsibility to ensure that data is supplied

Utility understands that Georgetown University will use the energy to: (1) administer the GUEP Competition and select the Finalists in accordance with the Competition Guidelines; (2) educate the public through our Competition Dashboard, as well as other media outlets; (3) conduct research directly and in conjunction with collaborating organizations; and (4) conduct all other activities consistent with the Master Team Agreement signed by Community during Phase 1 and Phase 2 of the Competition.

Utility may provide additional support for the Community's GUEP effort, consistent with the Community's Energy Efficiency Program Plan, submitted in Phase 2 of the Competition.

By: Larry Buie (Name of Representative) Region Director (Title)  
Chattanooga Gas Company (Organization)  
2207 Olan Mills Dr. (Street Address)  
Chattanooga, TN 37421 (City, State Zipcode)



GEORGETOWN UNIVERSITY  
ENERGY PRIZE

LETTER OF SUPPORT  
UTILITY

EPB (name of "Utility"), through this letter of commitment, expresses its support of CHATTAHOOGA's (name of "Community") effort to compete in the Georgetown University Energy Prize ("GUEP") and its commitment to provide timely, accurate, energy data as required by the Competition Guidelines (see [guep.georgetown.edu/rules-timeline](http://guep.georgetown.edu/rules-timeline)).

Utility provides the following energy services to the below types of customers within the Community (check all that apply):

Electric

Natural Gas

Residential Customers

Municipal Customers

Utility will support Community's GUEP effort by providing the Georgetown University Energy Prize, quarterly, with the total (aggregate) monthly energy directly supplied by natural gas and electric utilities to all of their residential and municipal customers in the community, as well as the current number of residential accounts. Aggregate data will be reported separately for the residential and municipal sectors.

Utility will work with Community to comply with all current and future energy data requirements in the Competition Guidelines. Georgetown University is working with our partners and communities in the Letter of Intent Program to ensure that data requirements are as simple as possible, however, it is ultimately the Community and the Utility's responsibility to ensure that data is supplied

Utility understands that Georgetown University will use the energy to: (1) administer the GUEP Competition and select the Finalists in accordance with the Competition Guidelines; (2) educate the public through our Competition Dashboard, as well as other media outlets; (3) conduct research directly and in conjunction with collaborating organizations; and (4) conduct all other activities consistent with the Master Team Agreement signed by Community during Phase 1 and Phase 2 of the Competition.

Utility may provide additional support for the Community's GUEP effort, consistent with the Community's Energy Efficiency Program Plan, submitted in Phase 2 of the Competition.

By: David Wade (Name of Representative) 6/20/14 (date) EPB & COO (Title)  
EPB (Organization)

10 WEST MLK (Street Address)

CHATTAHOOGA, TN 37419 (City, State Zipcode)



# LYNDHURST FOUNDATION

MACON C. TOLEDANO, ASSOCIATE DIRECTOR

[mtoledano@lyndhurstfoundation.org](mailto:mtoledano@lyndhurstfoundation.org)

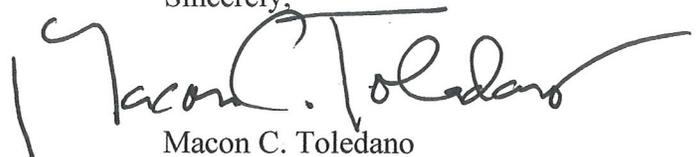
June 19, 2014

**RE: Georgetown University Energy Prize Competition  
Letter of Support**

To Whom It May Concern:

We are pleased to offer our support for Chattanooga's participation in the Georgetown University Energy Prize Competition. We look forward to working with green|spaces, the City of Chattanooga, the Electric Power Board, and Chattanooga Gas to develop a forward-looking strategy to lower our per capita energy use and improve the way we use our energy resources. We are excited about the innovations that the competition process will yield and look forward to the implementation of the resulting concepts and the benefits that they will bring to our city and community as a whole.

Sincerely,



Macon C. Toledano

Georgetown University Energy Prize Competition  
Letter of Support

19 June, 2014

Chattanooga understands the importance of collaboration, innovation, good design and environmental sustainability. In fact, we are a living embodiment of these core principles of strong community – it is what we do.

The Benwood Foundation supports the development of the plan for Chattanooga to compete in the Georgetown University Energy Prize Competition. We will work alongside green|spaces, the City of Chattanooga, the Electric Power Board and Chattanooga Gas to develop a strategy to lower our per capita energy use. We look forward to the improvements this competition will make to our community as a whole.

Sincerely,



Jeff Pfitzer  
Benwood Foundation

Georgetown University Energy Prize Competition  
Letter of Support

June 19, 2014

The Footprint Foundation is supportive of the development of a plan for Chattanooga to compete in the Georgetown University Energy Prize Competition.

We are encouraged by the important work of green|spaces to not only develop a strategy to lower our per capita energy use but to establish meaningful and strong partnerships with the City of Chattanooga, the Electric Power Board and Chattanooga Gas.

We look forward to the improvements this competition will make to our community as a whole.

Sincerely,

Lisa Pinckney Flint, Executive Director  
Footprint Foundation

March 28, 2014



Ms. Dawn Hjelseth  
green|spaces  
63 Main Street  
Chattanooga, TN 37408

Dear Dawn,

We're pleased to provide quarterly reporting to Georgetown University Energy Prize the total (aggregate) monthly energy directly supplied by us to all of the residential and municipal customers in Chattanooga, as well as the current number of residential accounts while green|spaces participates in the Georgetown University Energy Prize competition.

Please let us know if there's anything else EPB can do to help in this initiative.

Sincerely,

A handwritten signature in black ink, appearing to read 'D Wade'.

David Wade  
Executive VP & COO  
[wadejd@epb.net](mailto:wadejd@epb.net)  
423.648.3348

## Georgetown University Energy Prize Competition

### Letter of Support

June 3, 2014

Habitat for Humanity of Greater Chattanooga supports the development of the plan for Chattanooga to compete in the Georgetown University Energy Prize Competition. We will work alongside greenspaces, the City of Chattanooga, the Electric Power Board and Chattanooga Gas to develop a strategy to lower our per capita energy use.

Our Habitat affiliate has made great strides in providing energy efficient, sustainable homes for our partner families, in need. These efforts have allowed our organization to attain the award as the top homebuilder as presented by the Home Builders Association of Greater Chattanooga. Since 2012, all of our home builds have been built to Energy Star 3.0 Standards.

Our Neighborhood Revitalization Initiative was designed to transform neighborhoods using a holistic approach. We join with residents, nonprofits, businesses, local governments and communities of faith to create and implement a shared vision of revitalization. We are in our first year of "NRI" and have focused our efforts on Weatherization, exterior upgrading, landscaping and some critical home repair. Our efforts have been in the Bushtown neighborhood of Chattanooga. Our longer term goal is to expand our area of impact, as well as, the extent of the work we will provide to homeowners.

We look forward to the improvements this competition will make to our community as a whole. Our goal is to provide decent, affordable housing in the greater Chattanooga area. We believe that the outcome of this competition will reduce our families energy cost, while at the same time, not raise the cost of home construction.

Sincerely,

David Butler

Executive Director

Habitat for Humanity of Greater Chattanooga Area



Georgetown University Energy Prize Competition  
Letter of Support

June 19, 2014

River City Company supports the development of the plan for Chattanooga to compete in the Georgetown University Energy Prize Competition. We will work alongside green|spaces, the City of Chattanooga, Electric Power Board and Chattanooga Gas to develop a strategy to lower our per capita energy use. We look forward to the improvements this competition will make in our community.

Sincerely,

A handwritten signature in black ink that reads "Kim White". The signature is written in a cursive style with a large initial "K" and a long horizontal stroke at the end.

Kim White  
President/CEO

Georgetown University Energy Prize Competition  
Letter of Support

5/6/2014

WAP Sustainability Consulting, an environmental, energy and climate change consulting firm with offices in Chattanooga, TN, supports the development of the plan for Chattanooga to compete in the Georgetown University Energy Prize Competition. We will work alongside green|spaces, the City of Chattanooga, the Electric Power Board and Chattanooga Gas to develop a strategy to lower our per capita energy use. We look forward to the improvements this competition will make to our community as a whole.

Sincerely,

A handwritten signature in black ink, appearing to read 'B. McAllister', with a long horizontal stroke extending to the right.

Brad McAllister  
Partner  
WAP Sustainability Consulting



# City of Chattanooga

Mayor Andy Berke

Empower Chattanooga  
Letter of Support

1-9-2015

The City of Chattanooga, Department of Economic and Community Development is supportive of a partnership with Empower Chattanooga – Chattanooga's approach to the Georgetown University Energy Prize. Through this partnership, The City of Chattanooga, Department of Economic and Community Development will collaborate through related programs included in the East Chattanooga, Highland Park and East Lake neighborhoods. Our organization will consider how energy efficiency and affordability of utilities could be incorporated into our programs.

Such programs relating to housing, health or other quality of life improvements include but are not limited to:

- Expanded Home Repair Programs – Created by the City to increase opportunities for qualifying low-to-moderate income residents and landlords to receive home repair assistance.
- Affordable Housing Rental Property Development – Created by the City to preserve and produce affordable housing.
- Neighborhood Leadership Development – Through work with Neighborhood Association leaders, communities are educated about programs and services that are beneficial to local residents.

Sincerely,

Donna C. Williams  
Administrator, Department of Economic and Community Development  
City of Chattanooga



Empower Chattanooga  
Letter of Support

December 16, 2014

Chattanooga Neighborhood Enterprise (CNE) is supportive of a partnership with Empower Chattanooga – Chattanooga’s approach to the Georgetown University Energy Prize. Through this partnership, CNE will collaborate through related programs included in the East Chattanooga, Highland Park and East Lake neighborhoods. Our organization will consider how energy efficiency and affordability of utilities could be incorporated into our programs. In the 28 year history of the organization, CNE has implemented a number of programs to help citizens have a healthy, safe home.

CNE is a nonprofit created in 1986 whose mission is to create economically diverse neighborhoods filled with financially empowered citizens and housing for all. CNE was created to extend the City’s ability to remediate blighted housing, create new affordable housing through homeownership and rentals, and build stronger neighborhoods by leading the market through investment activities and engaging residents in the community.

Currently, CNE helps maintain housing affordability for existing low income homeowners through our home improvement loan program, funded through City of Chattanooga CDBG funds. The program enables the most vulnerable in our community to remain in their homes by undertaking critical home repairs that create safe and healthy homes and reduces blighted housing conditions in neighborhoods. The program offers no payment or very low interest rate loans by using City CDBG funds. By managing the contracting process for the homeowner, CNE also takes the complexity and risk out of the process. Also, for most low income homeowners the only option for repairs is through an insurance claim, ultimately resulting in high insurance costs or cancelled insurance policies. With a home improvement loan, the borrower saves money and continues their homeowner’s insurance policy.

We look forward to the improvements this program will make to our community as a whole.

Sincerely,

Jennifer Holder  
Communications & Special Projects Manager



# Family Promise<sup>®</sup> of Greater Chattanooga

1184 Baldwin Street  
Chattanooga, Tennessee 37403  
Phone: 423-756-3891  
Fax: 423-756-3892  
[www.fpchatt.org](http://www.fpchatt.org)

January 5, 2015

Dawn Hjelseth  
Empower Chattanooga  
63 East Main Street  
Chattanooga, TN 37403

Dear Ms. Hjelseth,

Family Promise of Greater Chattanooga is supportive of a partnership with Empower Chattanooga – Chattanooga's approach to the Georgetown University Energy Prize. Through this partnership, Family Promise of Greater Chattanooga will collaborate through related programs included in the East Chattanooga, Highland Park and East Lake neighborhoods. Our organization will consider how energy efficiency and affordability of utilities could be incorporated into our programs.

Family Promise of Greater Chattanooga offers its clients the following programs relating to housing, health and quality of life issues: Day and Overnight Shelters, meals, transportation, case management, internet service to apply for jobs and housing, laundry and bathing facilities, nap room, indoor and outdoor play areas for children, and Centralized Intake and Rapid Rehousing Programs through an MOU with the Chattanooga Housing Authority. FPGC also offers life skills classes for Play and Art Therapy, Nutrition, Cooking and Shopping on a Budget through a partnership with the University of Tennessee Agricultural Extension Program, Stress Reduction through Guided Relaxation, Anger Management, Family Empowerment Classes sponsored by Prevent Child Abuse Tennessee (PCAT) emphasizing the importance of parent-child relationships, child development, self-esteem, communication skills, discipline, nurturing and positive lifestyle.

Sincerely,

A handwritten signature in black ink that reads "Mary Ellen Galloway". The signature is written in a cursive, flowing style.

Mary Ellen Galloway, M.Ed., LPC, NCC  
Executive Director

Building communities, strengthening lives.

*Family Promise of Greater Chattanooga is a 501(c)(3) non-profit organization*



# City of Chattanooga

Mayor Andy Berke

Empower Chattanooga  
Letter of Support

January 14, 2015

The Office of Mayor Andy Berke, City of Chattanooga, is supportive of a partnership with Empower Chattanooga – Chattanooga's approach to the Georgetown University Energy Prize. Through this partnership, the City of Chattanooga will collaborate through related programs included in the East Chattanooga, Highland Park and East Lake neighborhoods. Our organization will consider how energy efficiency and affordability of utilities could be incorporated into our programs.

The City of Chattanooga is currently partnering with the Tennessee Department of Environment and Conservation (TDEC) Office of Energy Programs (OEP) to receive technical guidance aimed at reducing the City's operational energy consumption. As such, the City is also exploring opportunities to partner with local stakeholders for solar installations which could help provide renewable, cleaner and more affordable energy to homes and schools in low-income areas.

By aligning our efforts with those of Empower Chattanooga, we stand to more effectively improve the health and quality of life for all Chattanoogaans.

Sincerely,

Erik Schmidt  
Director of Sustainability  
Office of Mayor Andy Berke  
City of Chattanooga

Empower Chattanooga  
Letter of Support

12.23.2014

Chattanooga Department of Transportation (CDOT) is supportive of a partnership with Empower Chattanooga – Chattanooga’s approach to the Georgetown University Energy Prize. Through this partnership, CDOT will collaborate through related programs included in the East Chattanooga, Highland Park and East Lake neighborhoods.

In addition to enhancing sidewalk infrastructure citywide, the CDOT is administering a feasibility study for Transit-Oriented Development (TOD) and future passenger rail from downtown to the airport and Enterprise South, featuring important connections to first-ring urban neighborhoods of east Chattanooga.

Our transportation system consumes significant energy and natural resources. The CDOT believes that fostering well-connected communities with multiple connections – and providing choices for Chattanoogaans in how they get around – will result in stronger, safer, and healthier neighborhoods. In anticipation of the feasibility study for enhanced public transportation options for east Chattanooga neighborhoods, the CDOT is committed to working with CARTA in the short term to enhance public transportation connectivity of our existing bus lines to Enterprise South, so that residents of our east Chattanooga neighborhoods have options for how to connect to the important jobs available there.

Sincerely,

Blythe Bailey  
Administrator  
Chattanooga Department of Transportation - CDOT