



**ENERGY EFFICIENCY SAVINGS
IN FAITH INSTITUTIONS:
A PILOT PROJECT
WITH THE AME CHURCH**



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FOREWARD

This Joint Center report, *Energy Efficiency Savings in Faith Institutions: A Pilot Project with the AME Church*, documents a groundbreaking partnership with the African Methodist Episcopal (AME) Church to raise awareness and demonstrate the critical role of energy efficiency in saving resources at both the individual and church level, and in addressing our nation's energy and environmental challenges. It offers essential lessons to faith leaders, advocates, policymakers and researchers looking to maximize the use of scarce resources and to encourage solutions that engage diverse populations. This report is particularly timely given that President Obama, in his 2013 State of the Union address, called for the nation to “cut in half the energy wasted by our homes and businesses over the next 20 years.” The findings provide a firm foundation that the AME Church can build on to scale up its investments in energy savings efforts and in raising environmental awareness.

Many people worked collaboratively to see this project through, and they deserve our heartfelt thanks. We owe a debt of gratitude to AME Bishops Vashti Murphy McKenzie and Adam Richardson, whose forward-thinking leadership and commitment to caring for the health of our planet made this pilot project take flight. AME Reverends Wendell Christopher, Jermaine Wilson and Marietta Ramsey were gracious and enthusiastic in allowing their churches to be used as case studies and in engaging their staff to demonstrate the value of low- and no-cost energy retrofits. GREEN DMV consultants Rhon Hayes and Philip O’Neal carefully conducted the energy audits and guided church staff at the three churches selected through the project. Kellee James provided valued support to the Joint Center’s *Energy and Environment Program* Director Danielle Deane in documenting project results for this report.

Critical guidance and technical support were provided by Jerry Lawson, the National Manager of the ENERGY STAR® Small Business and Congregations Network at the U.S. Environmental Protection Agency, together with advisors Roger S. Bell and Sierra Stoney.

We are enormously grateful to the Walmart Foundation for providing funding to make this innovative project possible.

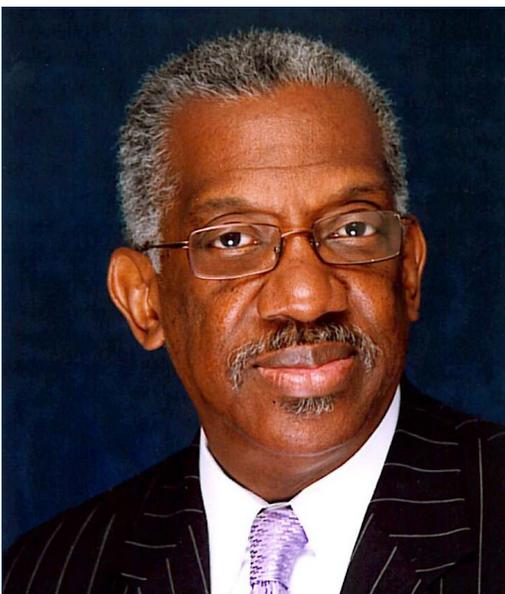
We look forward to building upon this effort to inform further measures to address our energy and economic needs, protect our citizens’ health, and safeguard the environment for future generations.

Ralph B. Everett, Esq.
President and Chief Executive Officer
Joint Center for Political and Economic Studies



“Our pastors were excited to participate in this project with the Joint Center for Political and Economic Studies. This collaboration between organizations from different sectors is a valuable model and we look forward to building on this partnership. We need to include more faith-based institutions as we seek to raise awareness and find solutions to our environmental problems.”

- AME Bishop Vashti Murphy McKenzie



“People often know we can do better ... this collaboration will have a dynamic effect on how we use energy by raising awareness and showing how small changes can make a big difference not just where we go to church, but where we live and work.”

- AME Bishop Adam Richardson

ABOUT THE PROJECT

In an effort to increase the engagement and awareness of African Americans on energy-saving strategies, the Joint Center for Political and Economic Studies spearheaded an energy efficiency pilot project in 2012 in partnership with the African Methodist Episcopal (AME) Church. The experience gained and lessons learned from the collaboration outlined in this report can be used to lay the groundwork and make the case for larger-scale engagement by the AME Church to adopt and support energy efficiency efforts.

Getting more work out of each unit of energy—energy efficiency—is critical to solving today’s energy, health and climate-disruption challenges. Building awareness of and support for policies that will accelerate energy-saving measures is crucial. African Americans, in particular, need to be involved, as they suffer disproportionately from the health effects of pollution while their communities are often in dire need of the jobs and business opportunities that clean energy policies are expected to generate. As President Obama noted in his 2013 presidential inauguration speech:

“The path towards sustainable energy sources will be long and sometimes difficult. But America cannot resist this transition, we must lead it. We cannot cede to other nations the technology that will power new jobs and new industries, we must claim its promise.”

At its outset, the project had two goals. The first was to demonstrate that projects to encourage “green” behaviors do not have to be large-scale and expensive to be successful and have wide impact. Indeed, it is this misperception that causes many to forego such efforts.

Second, using three case study churches in three separate church districts, the project aimed to lay a foundation for broader engagement of AME member churches by showing specifically which types of small, low-cost or no-cost investments work best to save energy, and money and to inspire people to get involved. The intent was to encourage the participating churches to see themselves as an important part of the solution to the nation’s energy challenges and also reap cost savings that could be redirected to their ministries.

The pilot project delivered savings, raised awareness, generated enthusiasm and provided lessons for dealing with challenges that can impact success. It highlighted that the AME Church could potentially save millions of dollars if resources were available to pursue a scaled-up energy efficiency effort.

The project was championed by two prominent bishops in the AME Church. Bishop Vashti Murphy McKenzie, best selling author and the first female elected bishop in the denomination’s history, served on the inaugural advisory council of the White House Office of Faith-based and Neighborhood Partnerships. Bishop Adam Richardson, whose work has taken him to over 30 countries, is also an author and the current president of the General Board of the AME Church. Other critical partners in the project were technical consultants GREEN DMV, a Washington, D.C.-based nonprofit that works to foster environmental awareness and green jobs, and advisor Jerry Lawson, the National Manager of the ENERGY STAR® Small Business and Congregations Network at the U.S. Environmental Protection Agency (EPA). The Walmart Foundation kindly provided financial support for the collaborative project.

This report highlights the process, results and recommendations from the project.

Projects that encourage “green” behavior do not have to be large-scale or expensive to be successful and have wide impact.

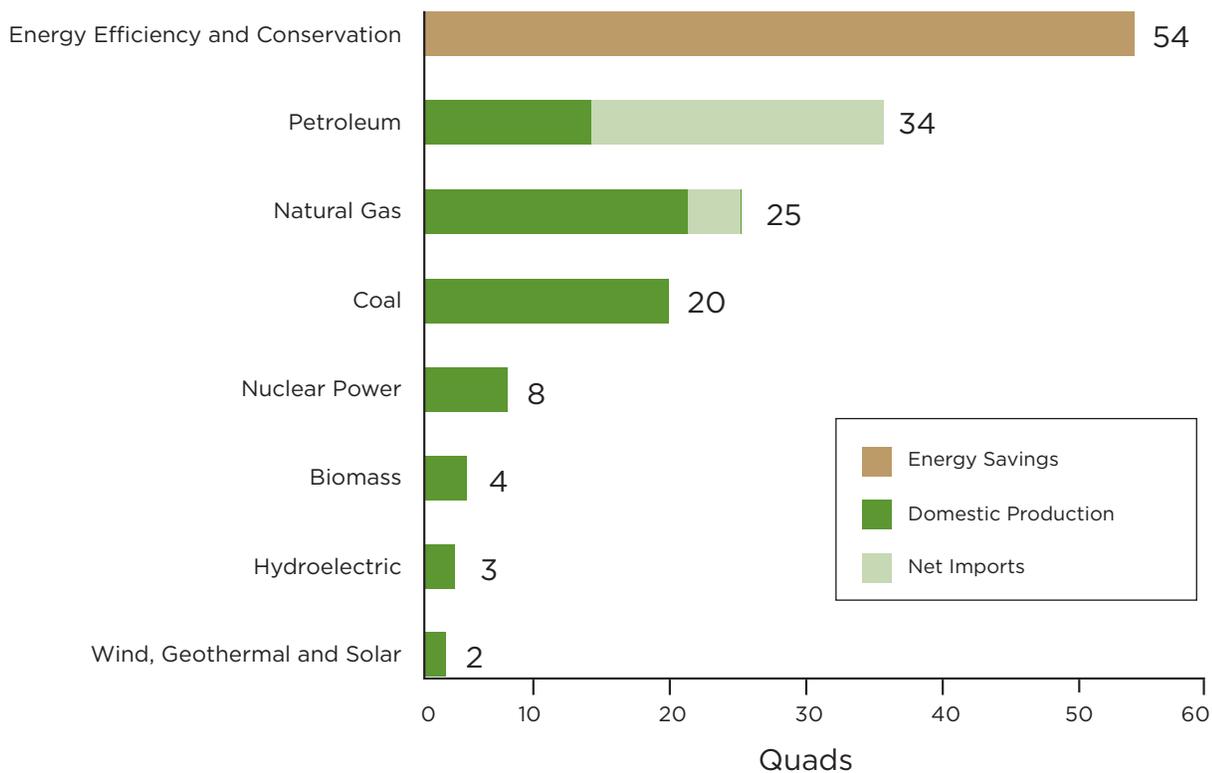
Simple changes by church leaders and congregations can lead to substantial savings.

HARNESSING ENERGY EFFICIENCY

When it comes to developing strategies and approaches for addressing energy and climate change challenges, energy efficiency is often undervalued at both the national and global level. The pilot project addressed energy efficiency because of its overlooked potential to reduce energy demand and produce long-term energy savings and other lasting environmental benefits. The partnership with the AME Church provided insights into the energy-saving prospects of small-to-medium size enterprises, and the lasting impact such organizations can make to overall energy consumption when even the simplest of energy-cutting actions are undertaken.

A key project goal was to illustrate how energy efficiency—or energy productivity—is just as important to sustainable energy policy as renewable energy strategies. To cite one important study, conservation and energy efficiency improvements implemented since 1973 in the United States “produced” more energy than any other source.¹ (See **Figure 1.**)

FIGURE 1: ENERGY EFFICIENCY AND CONSERVATION IMPROVEMENTS SINCE 1973 HAVE REDUCED ANNUAL ENERGY CONSUMPTION BY 54 QUADS IN 2011



The graph above shows that energy efficiency and conservation improvements since 1973 have reduced annual energy consumption in the U.S. by 54 quads in 2011, demonstrating that energy efficiency is the nation’s most productive energy resource. This chart shows that if we tried to run today’s economy without the energy efficiency improvements that have taken place since 1973, we would need nearly 55 percent more energy than we use now. This is more than what we get from any single energy source, including oil, natural gas, coal and nuclear power.

¹ Alliance to Save Energy, <http://www.ase.org/resources/energy-efficiency-americas-greatest-energy-resource>

The McKinsey Global Institute has estimated that “additional annual investments in energy productivity of \$170 billion through 2020 could cut global energy demand growth by at least half.”² That equates to close to one and a half times total U.S. energy consumption in 2008. Yet, the value that energy efficiency can deliver is often hampered by misconceptions at the institutional and household levels. Many believe that significant energy reduction requires large investments of time and costly equipment, such as solar panels, or that the reduction of energy use in smaller “fixes,” such as switching to more efficient light bulbs, is so miniscule that it is not worth the trouble.

“Energy efficiency represents a huge opportunity to help businesses across the country save money by saving energy.”²

— Dr. Ernest Moniz
U.S. Secretary of Energy

Yet, it has been shown that even small acts toward increasing energy efficiency can yield significant returns on investments. For example, the U.S. Department of Energy estimates that grocery stores that reduce energy costs by 10 percent see a 16 percent improvement in profit margin.⁴

Adding to the challenge, government policies meant to encourage and scale up energy efficiency operate successfully in some locales and certain categories of buildings, but are inappropriate for others. According to the U.S. Energy Department’s Pacific Northwest National Laboratory and National Renewable Energy Laboratory, small buildings have tremendous energy-saving potential. In July 2013, the U.S. Department of Energy, noting that commercial buildings consume 20 percent of the nation’s energy, announced it would develop tools and resources to help small commercial buildings, including schools and churches, save energy. Such recent initiatives targeting small-to-medium size business enterprises underscore the value of engaging religious institutions, with their potential impact not only on houses of worship but also congregants and their households.

ENGAGING CHURCHES IN ENERGY EFFICIENCY

The pilot project’s partnership with the AME Church provided outreach to churches on energy efficiency. The benefits of such a strategy are substantial—the U.S. Environmental Protection Agency (EPA) estimates that if America’s 370,000 houses of worship cut their energy use by only 20 percent, they would:⁵

- Save nearly \$630 million each year that could be redirected to ministries, missions and priorities.
- Cut electricity use by 3.6 billion kWh of electricity annually.
- Prevent more than 2.6 million tons of greenhouse gas emissions every year, which is about the equivalent to the emissions of 480,000 cars or to planting nearly 600,000 acres of trees.

The AME Church proved to be an ideal partner for this project given the Joint Center’s long-standing commitment to increasing understanding within the African American community regarding individual actions and public policies that can help address our nation’s energy challenges.

2 http://www.mckinsey.com/insights/energy_resources_materials/the_case_for_investing_in_energy_productivity

3 <http://energy.gov/articles/energy-department-invests-save-small-buildings-money-saving-energy>

4 *Energy Department Invests \$10 Million to Cut Energy Waste in Small Commercial Buildings* (July 17, 2013)
http://apps1.eere.energy.gov/news/daily.cfm/hp_news_id=389

5 www.energystar.gov/congregations and email communication with Jerry Lawson, National Manager, ENERGY STAR Small Business & Congregations Network, U.S. EPA

With 4,100 AME member churches throughout the United States,⁶ the AME Church denomination has been an historic pillar of support for the African American community. This influential faith community also has member churches in 38 other countries on five continents.⁷ The church has played a key role in American history. Born in protest against racial discrimination and slavery, it was the country's first African American church denomination. The first African American U.S. Senator, Hiram Revels, seated in 1870, was an ordained pastor of the AME Church.⁸

Like many other faith communities, the AME Church has seen a rise in its members' concern for environmental issues that affect the health and well-being of their congregants, as well as increased alarm on the causes and impacts of climate change. This awareness consciously embraces a reverence for the natural environment—"God's creation"—and a responsibility that stems from their perspective of being stewards of God-given resources.

PHASE ONE

PROJECT LAUNCH AND PUBLICITY

The Joint Center worked with Bishop Vashti Murphy McKenzie and Bishop Adam Richardson of the AME Church, GREEN DMV and the EPA to issue a press release announcing the project and the support being provided by the Walmart Foundation. A separate communication went directly to AME pastors through regular church communication channels, explaining that three churches would be selected to implement low- and no-cost retrofits in an effort to demonstrate how churches could save money while being better environmental stewards. This led to a number of organizations that highlight developments within the African American community featuring the story of the collaboration, including the United Negro College Fund/Building Green Network.⁹

Bishops McKenzie and Richardson led the outreach to AME member churches. "We want to help our congregations and communities save energy and generate dollar savings that can be used to extend their work," said Bishop McKenzie, whose 13th Episcopal District at the start of the project included Tennessee and Kentucky. "Some of our churches are very large and consume a great deal of energy, so there is the potential for significant savings."

Bishop Richardson, who was based in the Second Episcopal District that includes Maryland, the District of Columbia, Virginia and North Carolina, noted, "AME churches come in all sizes and states of repair, with some dating back more than 100 years, so there is great potential for savings from becoming more energy efficient. We will explore how to go about recovering costs. We want to be on the cutting edge and contribute to improving the environment."

To encourage more widespread engagement, the project was featured at a forum during the 49th Quadrennial Session of the AME Church's General Conference, at which First Lady Michelle Obama spoke. The event, held in Nashville, Tennessee in June, 2012, was a key forum for all of the project partners to show their support for the collaboration. The project's participation at the event was covered by media outlets, including *Insight News*.¹⁰ The project was also the subject of sessions at two subsequent regional AME Church district conferences. All combined, these various outreach efforts exposed thousands of congregants to the energy efficiency goals of the project.

6 Email correspondence with Karen Bluing-Osborne, AME Church Finance Department on Sun 6/24/2012 6:22 PM. If one adds international branches, there are 7,500 AME branches.

7 <http://www.ame-church.com/about-us/history.php> (as of 8/12/2013)

8 http://en.wikipedia.org/wiki/Hiram_Rhodes_Revels (as of 8/3/2013)

9 <http://buildinggreennetwork.org/joint-center-partners-with-ame-church-bishops-and-green-dmv-to-promote/>

10 <http://www.insightnews.com/lifestyle/9251-joint-center-collaboration-with-ame-churches-and-green-dmv-aims-to-generate-energy-efficiency-and-financial-savings>



◀ Adrienne White of Walmart and Danielle Deane of the Joint Center (front row) with project team members from GREEN DMV and advisors from the U.S. EPA at the AME Church Quadrennial Conference in Nashville, Tennessee, June 29, 2012.

This event draws nearly 30,000 AME Church congregants.

PHASE TWO

ENERGY EFFICIENCY AUDIT, ACCESSING UTILITY BILLS, RELATIONSHIP-BUILDING AND ENERGY STAR® SCORING OF CHURCHES

Bishops Richardson and McKenzie helped to identify churches in three districts that might be good candidates for adopting these retrofit measures. GREEN DMV consultants, with guidance from the EPA ENERGY STAR® for Congregations program, conducted visits to 16 churches and selected three candidates to implement low- and no-cost retrofits: Pilgrim AME Church in Washington, D.C., Bethlehem AME Church in Baltimore, Maryland, and St. John AME Church in Frankfort, Kentucky.

Factors contributing to the selection included hours of operation, size of the congregation, types of activities conducted at the facility and the square footage of the building, as well as Bishops McKenzie's and Richardson's assessment of which churches might best serve as examples to other AME member churches. A building's physical characteristics and its typical use helped determine its potential for low- and no-cost measures to have a meaningful impact. Churches were chosen in different states and to reflect varying patterns of operation in an effort to engage a broader range of congregations. Their characteristics are noted on page 12. (See **Figure 2.**)

The assessment phase of the project was time-intensive due to the challenges of ensuring participation of key church staff. It was critical that the consultants conducted the survey with operations staff and/or the pastor who knew the inner workings of the church and could provide information that would accurately inform the assessment. We found that the

FIGURE 2: CHARACTERISTICS OF PARTNER CHURCHES

CHURCH AND LOCATION	SEATING CAPACITY	HOURS OF OPERATION
ST. JOHN AME CHURCH Frankfort, KY	550	60
BETHLEHEM AME CHURCH Baltimore, MD	100	12
PILGRIM AME CHURCH Washington, DC	350	8.5

staffs of many churches tend to be lean and may include volunteers, so scheduling and follow-up often took longer than expected. As a result, a significant amount of time was required to nurture the relationships for a successful project implementation.

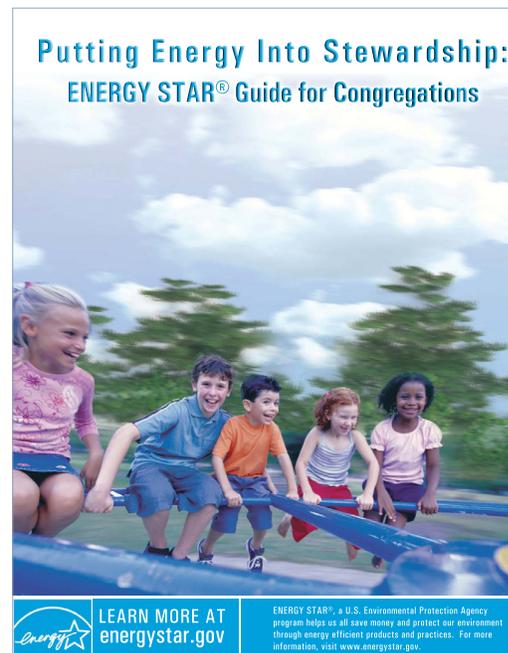
It is important to note that church site visits were not solely fact-gathering missions, but also served as important relationship-building opportunities that produced insights into how the pastor and staff understood the physical workings of the church. They also gave an opportunity for the pastor and staff to express their views on energy efficiency issues.

The EPA’s *Guide for Congregations* is a valuable tool to help churches conduct this process on their own. The guide can be found online¹¹ at: http://www.energystar.gov/index.cfm?c=congregations_guidebook.congregations_guidebook

Energy-wasters found during this initial assessment of the churches included the following:

- Light bulbs that were never or seldom turned off, including “day-burners” (outdoor lights left on during daylight hours).
- Cracks in window panes.
- Refrigerators that were either empty or infrequently used but left running. In one case, two running refrigerators stood side-by-side, one empty.
- Doors left open to the elements or without door sweeps, so that air being used to heat or cool a space easily escaped.
- Hot water heaters set too high.

Collecting data from electricity bills for at least the previous year—ideally, the previous two years—provides critical input for analysis. To rule out energy use variations due to changing seasons, it was necessary



▲ The EPA’s *Guide for Congregations* provides valuable, easy-to-understand advice on how to embark on an energy savings project.

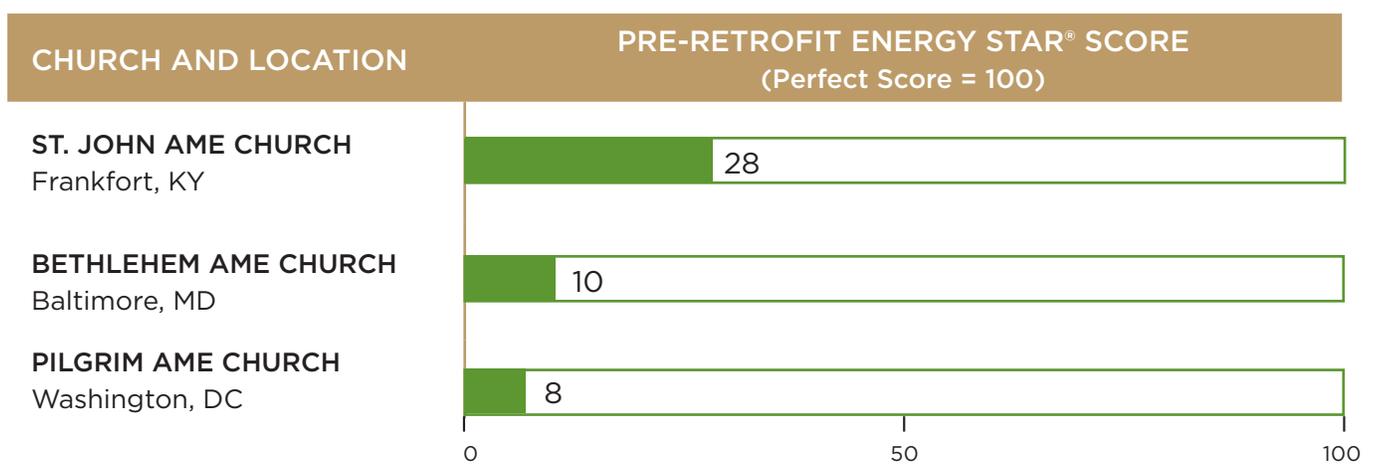
¹¹ URL and EPA’s *Guide for Congregations* cover current as of August 12, 2013

to compare year-on-year data for our project. One time-saver for this project was the availability of online billing records. Pastors signed permission forms provided by their utility companies to grant consultants or other church staff access to their previous energy bills. Using online bill records often proves faster than attempting to find paper records of energy use.

The project made use of the EPA’s ENERGY STAR Portfolio Manager®, an online tool for measuring and tracking energy and water consumption which can be used to benchmark the performance of one or more buildings. This well-respected and widely used analytical tool has benchmarked more than 37,000 commercial buildings nationwide, including approximately 2,000 worship facilities. More than 400 facilities have earned the coveted ENERGY STAR® certification by scoring above 75, demonstrating that they are among the top performers, in the top 25 percent of their peers.

Portfolio Manager® accounts for building size and regional weather conditions, compares actual energy use to an optimum based on benchmarks, and assigns a score. An ENERGY STAR® score on a scale from one to 100 (with 100 being best) was assigned to the three churches selected for the retrofits. The pre-retrofit ENERGY STAR® scores of the three churches are shown below. (See Figure 3.)

FIGURE 3: PRE-RETROFIT ENERGY STAR® SCORES



All three churches had scores in the bottom third of facilities in their category, and two were in the bottom 10 percent of similar buildings nationwide. This suggested that a significant amount of energy was being wasted and that these churches could get better value for their utility bill dollars by conducting simple low- and no-cost retrofits.

PHASE THREE
IMPLEMENTATION OF LOW- AND NO-COST ENERGY EFFICIENCY MEASURES

Low- and no-cost retrofit measures adopted during the project included replacing light fixtures and installing “smart” thermometers that automatically adjust building temperatures overnight, when they are typically empty. Operations and maintenance measures included replacing dirty filters on HVAC systems, repairing broken windows, and finding and addressing other energy-wasters. Incandescent light bulbs were replaced with next-generation bulbs that provide better light at significantly lower energy consumption and last for years.

Human behavior is a critical element of energy savings, so engagement and education of the building’s day-to-day caretakers was vital to the success of the retrofits. Energy efficiency experts caution that improving a building’s energy use must go beyond altering the physical building itself. For this reason, the involvement of church staff in making the

improvements was key to the project. While the consultants, in collaboration with the EPA, suggested and supervised specific measures church staff could and should take, the staff members themselves performed the tasks. They installed door sweeps, fixed panes, swapped out bulbs, and the like. Long-term impacts can best be realized when energy-saving becomes a habit: shutting off lights; programming thermostats to adjust to a lower setting when the church is not occupied and/or installing lockboxes so that congregants cannot override settings; grouping audio-visual equipment on a power strip that can be turned off by one switch; creating monthly or annual checklists to maintain door sweeps, windows and other possible sources of energy leaks. It is only with the buy-in and involvement of church clergy and lay leaders that churches develop the institutional knowledge and capacity to successfully implement energy-saving measures and continue them for maximum long-term benefit.

Establishing a “green team” of parishioners and building staff is recommended to help sustain the initial changes. As one pastor noted, this exercise could be a useful, hands-on way to engage youth.

The supplies purchased and the installation locations are summarized in the Appendix. **(See Appendix.)**

PHASE FOUR

COMMUNICATION AND POST-RETROFIT ANALYSIS

One lesson learned from the project is that telling the story after the retrofit is vital, as it can precipitate changes beyond the scope of the project, as well as encourage implementation by other member churches. Participants should be reminded that the impacts of the retrofits can take a couple of months to show up in a church’s utility bills.

Project partners took advantage of key venues to spread the story of this project. Three examples included the AME Church’s Quadrennial Conference, a White House Forum on Faith and the Environment, and a round-table discussion for the energy efficiency advocacy community hosted by one of the Joint Center’s key partners, the Alliance to Save Energy.

Each church spent roughly between \$1,000 and \$2,000 to retrofit their buildings. **(See Appendix.)** Once the energy efficiency measures were implemented, and the requisite two-month “settling down” period had passed, data was gathered over a four-month period in the fall of 2012 and compared with the same period of the year before. Revised ENERGY STAR® scores for the buildings were determined and the annual savings that would accrue were estimated.

By using a statistical model based on the EPA’s data for houses of worship across the U.S., the potential annual savings for all AME churches in the United States also was calculated. It is hoped that these results will prompt the financial stewards of the AME Church and other church leaders to encourage broader adoption of similar energy efficiency retrofits.

DISCUSSION OF RESULTS

The impact of the retrofits is presented on page 15 **(See Figure 4.)**, providing important lessons as well as a cautionary tale for consultants and congregations. As highlighted in the table, two churches gained meaningful savings from the retrofit, each reducing its energy use by almost 25 percent. It is worth noting that St. John AME, which had the highest score among the three churches pre-retrofit, demonstrated a gain equivalent to Bethlehem, which had a lower score. St. John may benefit from a more up-to-date physical plant, higher buy-in from congregants, better maintenance or other factors. At Bethlehem, even a small uptick on the post-retrofit figures resulted in a 24 percent decrease in energy use that will produce estimated savings of over \$1,200 annually.

FIGURE 4: IMPACT OF RETROFITS ON PARTNER CHURCHES

	PRE-RETROFIT ENERGY STAR® SCORE*	POST-RETROFIT ENERGY STAR® SCORE*	Change in Weather- Adjusted BTUs** per square foot	Estimated Annual Utility Bill Savings
BETHLEHEM AME CHURCH Baltimore, MD	10	12	-23.9%	\$1,231.70
ST. JOHN AME CHURCH Frankfort, KY	28	52	-23.7%	\$1,480.30

* A perfect ENERGY STAR® Score = 100

** A BTU (British Thermal Unit) is the quantity of heat required to raise the temperature, of one pound of water by one degree Fahrenheit. Cost savings were estimated based on actual energy usage at St. John AME over the time periods specified, and average annual electricity and natural gas prices for commercial buildings in Kentucky.

(Source: U.S. Energy Information Administration, <http://www.eia.gov/>)

It was not possible to report on the monetary impact of the retrofit of Pilgrim AME Church in Washington, D.C., illustrating an important lesson. During the post-retrofit data-gathering period allotted for this project, Pilgrim started a construction project on its building, rendering it impossible to quantify and compare year-on-year results due to the energy demands of construction. While the financial benefit cannot be accurately assessed during the timeframe of this project, Pilgrim AME Church members still gained valuable knowledge from their participation in this retrofit that they can apply to making the new construction energy-efficient. Pilgrim AME Church also saw immediate benefits in aesthetics and comfort, and the church’s pastor was enthusiastic about his experience, as described later in the report.

With this project, the two churches noted in the results table above—St. John AME and Bethlehem AME—show that the initial one-time investment in retrofits pays for itself in roughly one year to one year and a half, and continues to produce savings over the lifetime of the new equipment. How long the energy-efficient replacements last varies with the usage patterns for each church, but some estimations can be made. For instance, ENERGY STAR compact fluorescent bulbs last 10 times as long as the incandescent bulbs that they replaced, and ENERGY STAR certified refrigerators are required to use about 15 percent less energy than non-certified models and can last for 20 years.¹²

LESSONS LEARNED AND RECOMMENDATIONS

The pilot project achieved important goals and offered valuable lessons for future projects. These include:

Energy efficiency projects, including low-cost technological fixes and no-cost behavioral changes, are excellent ways to “go green”.

Dispelling the notion that doing anything “green” always requires very expensive up-front investments is important. For those who feel that saving energy can be achieved only with more costly measures such as solar panel installation, it is an eye-opener to discover that behavioral changes, such as keeping up with maintenance and adjusting the thermostat, can generate worthwhile savings. It is equally critical that congregants realize that technology alone is not a panacea. Installing motion-sensitive lights and swapping out exit signs for more energy-efficient models must be coupled with

¹² www.energystar.gov/congregations and email communication with Jerry Lawson, National Manager, ENERGY STAR Small Business & Congregations Network, U.S. EPA

remembering to close doors, unplug empty refrigerators and turn off audio-visual equipment when not in use. Switching out light bulbs is a simple fix that proves meaningful in cost and energy use; such “entry-level” fixes provoke an interest in finding additional low- and no-cost ways to save.

It is worth noting that, before the project, none of the pastors had considered retrofits to save energy. Said one, “There are other areas in our church that have my attention right now. This particular thing hadn’t really crossed my mind. We are in the process of trying to go green in the church, as far as not using as much paper.” The impact of a small fix surprised another pastor. He noted that ENERGY STAR® bulbs alone save between \$6 and \$14 a year annually, so that when multiplied by the 80 bulbs in his church chandeliers, the savings were meaningful.

Energy efficiency projects can energize congregants to get involved in other environmental projects at work and at home. Pride in saving energy and caring for the Earth often snowballs, spreading to congregants’ workplaces and schools as well as to their residences. As such, churches are ideal for no- and low-cost retrofits because they are places where communities gather and, therefore, the examples churches set can inspire a great deal of change and impact in the wider community.

Ownership of the project by church staff is vital to long-term impact.

Increasing knowledge of the facilities and involving parishioners and clergy in making the physical changes creates a sense of ownership critical to changing everyday behaviors among all stakeholders. Energy efficiency experts emphasize that technological fixes must be coupled with behavior change, lest the improvements and savings be blunted. Analysts suggest that building managers first concentrate on boosting their ENERGY STAR® score with smaller measures before investing in expensive equipment.

Assigning an energy team to conduct scheduled walkabouts to check for money-wasters is one way to help congregants become engaged and proud of their energy record. Youth members can be particularly committed members of such teams. One church plans to include energy and costs saved in its annual report to parishioners. Bishop Richardson noted that often church staff and congregants do not know the amount of their own energy bills, so focusing on costs and savings at the church level is a direct way to encourage wider interest in saving energy. Once parishioners are engaged in this way, it becomes easier to make turning off lights and unplugging unused appliances a church-wide—and lifelong—habit.

Highlighting aesthetics and comfort encourages participation.

In interviews after the project was completed, the pastor at Pilgrim AME noted his surprise that the church was more brightly lit, and that the project had increased the building’s physical comfort and aesthetics. Energy efficient bulbs produce less heat and provide better light quality. As a side benefit, bulbs that emit less heat also produce savings on air conditioning costs. The pastor felt cooler and more comfortable from the pulpit, and described the excitement as parishioners arrived for Bible study and weekend services to find their church transformed: “It is a beautiful effect, like stars.”¹³ He suggested that, in addition to underlining the potential to save money, consultants can employ “before and after” photos from other churches to generate enthusiasm for future projects.

Consultants should be experienced at evaluating churches and have thorough questionnaires during the audits to flag issues that might affect the success of the project, particularly in pilot projects. Asking comprehensive questions, including the existence of plans for near-term changes, is an important step to take before fully initiating a project. In the case of

13 Interview with Rev. Wendell Christopher, June 18, 2012 by Danielle Deane

Pilgrim AME Church, construction occurred soon after the retrofit. So it was not possible during the record collecting period allotted for the project to assess the impact of the retrofits. However, its pastor was still eager to tell the story of the energy-saving measures that were implemented. He described how appreciative the congregants were for the lessons learned and the improvement in the church's aesthetics—impressions that they could take beyond the church walls. It was an important reminder that a key goal for this project was awareness and engagement of the congregants.

Environmental pilot projects can be a bridge to civic engagement beyond church doors and build momentum for further action.

A hands-on project like this lays the groundwork for a congregation-wide discussion about programs and local, state or federal policies that hinder or hamper progress on “Caring for God’s Creation,” impacting energy efficiency and other environmental measures nationwide. Churches may choose to become involved in policy forums that will highlight the benefits of energy efficiency and the need for improved financing mechanisms. Others may publicize their success in the community, encouraging businesses and schools to perform energy audits and retrofits. A church or individual members may choose to collaborate with faith-based networks across the nation to advocate for environmental issues.

Efforts to build on the pilot project include presenting the results at a regional gathering, working the project into Bible study or youth education classes, raising awareness of programs that support energy efficiency, and encouraging the church leadership to share the data and savings locally and regionally. Said one pastor, “A lot of churches are really struggling just to make ends meet. Anything they can do to help them save, even if it is just a couple of hundred dollars a month, will be a blessing.”

Financing retrofits is a challenge, despite the high return on investment.

This project has whet the appetite for scaling up retrofit efforts to more AME churches and to go beyond low- and no-cost measures since the return on investment is worthwhile. However, financing is often a challenge. Policymakers need to encourage financing larger scale retrofits of commercial buildings under 50,000 square feet, which account for 90 percent of the nation’s commercial stock. While there is financing available, barriers exist, though policymakers are always working to improve access. Three important factors impact financing.

Local, state or federal programs often do not conduct adequate outreach efforts. A flier in a utility bill or advertisements in the media won’t attract the attention of the busy managers and volunteers who handle day-to-day maintenance in a church. Targeted outreach to senior leadership, including finance personnel, can help jumpstart an effort to save energy. Greater support for the EPA’s ENERGY STAR® for Congregations program would have a high return on investment.

Another issue is that financial incentive projects often target businesses above the size of many churches or focus on homes. Church facilities can fall through the cracks.

Lastly, the scale of public financing is critical. Private finance companies look for a few large-scale facilities that generate a quick return on investment. Yet the public good can be served by retrofitting a greater number of smaller facilities, especially when these efforts ripple across the wider community, encouraging further energy saving at many levels. Such opportunities could be addressed through policies designed to target houses of worship. These are under review at agencies like the Department of Energy.

A valuable, online, easy-to-search tool that provides information about energy efficiency incentive programs by state is the Database for State Incentives for Renewables and Efficiency (DSIRE) website at <http://www.dsireusa.org/>.



▲ A valuable, easy to search, online resource for exploring energy efficiency incentive programs can be found at www.dsireusa.org

would be saved annually. (See Figure 5.) This is a significant sum for any denomination. For the AME Church and other denominations across the country, a well-funded effort aimed at helping churches “go green” should be a priority for Church leaders, pastors, chief financial officers, community development leaders, congregants and policymakers alike.

One can inject fun into the process. For instance, to get the church community—especially youth—engaged, a competition can be staged between districts in different regions to see which church can save the most from a greening project. In Washington, D.C., a 2012 competition between universities resulted in Howard University beating George Washington University and American University for the “D.C. Campus Power Down Energy Conservation Challenge.” This was proudly reported in Howard’s *The Hilltop* campus newspaper.¹⁴ The project did a great job of raising awareness about energy solutions for all the students involved in the competition.

CONCLUSION

In his 2013 State of the Union speech, President Obama said, “I’m also issuing a new goal for America: Let’s cut in half the energy wasted by our homes and businesses over the next 20 years. We’ll work with the states to do it. Those states with the best ideas to create jobs and lower energy bills by constructing more efficient buildings will receive federal support to help make that happen.”

To solve our energy, pollution and climate change challenges, all the tools available for change need to be leveraged, from the individual level to achieving wide-scale impacts through smart policies that stimulate all sectors of the economy to stop wasting energy. President Obama’s Climate Action Plan identifies efficiency as a key component in meeting our energy and climate goals and the Administration has pledged support for innovation. Said Dr. Ernest Moniz, U.S. Secretary of Energy, “As the President made clear, energy efficiency is one of the clearest and most cost-effective opportunities to save businesses and communities money while curbing harmful emissions.”¹⁵

The AME Church would benefit from tracking aggregate energy expenditures and exploring mechanisms for energy efficiency financing that would produce significant returns on investment.

A key recommendation of this report is that the next phase of this project should expand to include discussions with AME Church finance executives and a program to include the tracking of energy bills at different levels—e.g. district, conference and national levels. The pilot project revealed that the AME Church reporting requirements do not include a process for highlighting the churches’ energy costs in an aggregate way that would focus attention on the denomination’s energy use expenditures at the district or national levels.

The EPA’s analyses show that, if all 4,100 AME churches across the country invested in efforts that would improve energy efficiency by just 20 percent (typical savings from modest investments that the EPA has tracked), more than \$5 million

14 <http://www.thehilltoponline.com/news/howard-university-wins-dc-campus-power-down-1.2713932#.Uf2SCNK1FB>

15 <http://energy.gov/articles/energy-department-invests-save-small-buildings-money-saving-energy>

FIGURE 5: POTENTIAL ENERGY SAVINGS IF ALL AME CHURCHES MADE CHANGES

	AVERAGE U.S. CHURCH*	ALL AME CHURCHES** (Estimated)
Average Annual Energy Bill	\$7,192	\$28.1 million
10% Savings	\$719	\$2.8 million
20% Savings	\$1,438	\$5.6 million
30% Savings	\$2,158	\$8.4 million

The AME Church does not track the combined energy spend for all its churches. But based on average numbers for houses of worship, it could be as much as \$28 million each year. If a larger scale energy efficiency effort was launched, and churches achieved even a 20 percent savings (which two churches in this pilot did from small interventions) the AME Church could save roughly \$5 million each year.

* Source: U.S. Energy Information Administration, 2005 Commercial Buildings Energy consumption Survey (CBECS), houses of worship with 500 seats or fewer; ** Estimated total for all 4,100 AME churches in the U.S.

Engaging African American leaders in ensuring that policy makers understand the challenges on the ground, including those highlighted in this pilot project with AME churches, is important. This project can serve as a stepping stone to building greater awareness and engagement among African Americans. For the AME Church in particular, the savings that would accrue from a “Phase Two” large-scale expansion of this energy efficiency pilot project could save millions of dollars, provide lessons to policymakers, and produce spillover effects as congregations take the lessons into their homes, workplaces and schools.

Finding appropriate financing is likely to be easier when arranged collectively, rather than church by church, as with this pilot project. Some churches in other case studies have found local hardware stores willing to make donations of certain supplies. For the donor business, the donations could qualify as a tax-free gift, and local merchants know that being seen as a “good citizen” and generating goodwill in their communities can also be good for business.

Programs such as this pilot project demonstrate how no- and low-cost retrofits save significant money and energy, underline the importance of human behavior in making those retrofits as effective as possible and point to the importance of data-gathering to get the attention of finance personnel in order to take these efforts and the savings to scale. Linking such projects with faith-based congregations in the African American community encourages more than saving energy. It promotes the contribution of an organized, influential and environmentally-committed group to efforts aimed at improving energy and climate policies nationally and abroad.

APPENDIX

SUPPLIES PURCHASED AND INSTALLATION LOCATION

	PILGRIM AME CHURCH	BETHLEHEM AME CHURCH	ST. JOHN AME CHURCH
Address	612 17th St., NE Washington, DC 20002	6616 Graceland Ave. Baltimore, MD 21224	210 Clinton St. Frankfort, KY 40601
Pastor	Rev. Wendell O.E. Christopher, Sr.	Rev. Marietta Ramsey	The Rev. Jermaine L. Wilson
Installers	GREEN DMV and Mr. Roots (Church Trustee)	GREEN DMV and community resident Steve Gray	The Rev. Jermaine L. Wilson
LEDs	21	8	36
LED Installation Location	15 in Sanctuary, 6 outside church	4 in foyer, 4 in sanctuary	35 in sanctuary, 1 outside church
CFLs	60		3
CFL Installation Location	Sanctuary		Sanctuary
Refrigerator		1	
Refrigerator Installation Location		Kitchen	
Exit Signs	4		
Exit Signs Installation Location	3 in the sanctuary, 1 in foyer		
Door Sweeps	2		
Door Sweep Installation Location	Sanctuary		
Hot Water Pipe Insulation		1	
Hot Water Pipe Installation Location		Hot water heater located upstairs	
Cost of Supplies	\$1041.78	\$950.98	\$2006.80

ABOUT THE JOINT CENTER FOR POLITICAL AND ECONOMIC STUDIES

The Joint Center for Political and Economic Studies conducts research and policy analysis on topics of concern to African Americans and other people of color. Initially founded to encourage African American political participation and to support newly elected black public officials in the wake of the passage of the Voting Rights Act of 1965, the Joint Center continues to promote civic and political engagement and to support black leadership as a primary route to greater equality and opportunity.

ABOUT THE COMMISSION TO ENGAGE AFRICAN AMERICANS ON ENERGY, CLIMATE CHANGE AND THE ENVIRONMENT

The Joint Center's *Commission to Engage African Americans on Energy, Climate Change and the Environment* is comprised of leading experts representing scientists, scholars, policymakers, entrepreneurs, leaders in public health, industry, business, and the media, educators, civil rights activists, and environmentalists to provide input and advice to the Joint Center regarding research priorities, equitable energy and climate policy, and ongoing outreach efforts.

ABOUT THE AUTHORS

Danielle Deane is the Director of the *Energy and Environment Program* at the Joint Center For Political and Economic Studies. In this role she manages the blue-ribbon *Commission to Engage African Americans on Energy, Climate Change and the Environment*. Danielle's background spans the private, social change and science sectors. She served the full eight-year term as an Environment Program Officer at the Hewlett Foundation in California, investing over \$20 million to build an initiative that broadened the environmental movement in California and advanced influential clean air and climate policies. Earlier in her career, Ms. Deane was a financial analyst and broker at the international reinsurance brokerage arm of Marsh and McLennan Companies, and also conducted research at the NASA Goddard Institute for Space Studies. Danielle was a Fellow of the Millennium Ecosystem Assessment and the Association of Black Foundation Executives (ABFE). She holds a M.Sc. from the London School of Economics in Environment and Development, and a B.A. from Williams College in Political Economy with an Environmental Studies Concentration.

Kellee James is a non-resident Senior Fellow in the Joint Center's *Energy and Environment Program*, specializing on the links between the environmental and economic issues. She is the Founder and CEO of Mercaris, a market data service and online trading platform for organic, non-GMO and certified agricultural commodities. In 2009, she was appointed by President Barack Obama as a White House Fellow and was a *Crain's Chicago Business Magazine's* '40 under 40' rising leader. Previously, Kellee spent five years at the Chicago Climate Exchange (CCX) and also worked with commodity banks in Latin America on risk management and income diversification strategies. Kellee is an Aspen Institute Catto Environmental Fellow and has also served on the board of Net Impact, a membership organization of MBA professionals committed to sustainability through corporate responsibility. Kellee received her MBA and MA in International Development from American University in Washington, D.C., and completed a BA in Spanish from the University of Kentucky.



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