

BUILDING THE FUTURE OF ENERGY IN THE DISTRICT

.....
2017 ANNUAL REPORT



DC
SUSTAINABLE ENERGY
UTILITY



2017 ANNUAL REPORT

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The 2017 fiscal year (FY) data presented in this report are based on the DCSEU's estimates of energy savings and green job hours. These data are subject to rigorous monitoring and verification by a third-party evaluation firm hired by the District Department of Energy and Environment.



A MESSAGE FROM THE DCSEU

The DCSEU's Fiscal Year (FY) 2017 was so successful that it has set a new standard for outstanding performance. More residents and businesses than ever before saved money on energy costs. We reduced the District's footprint significantly by preventing carbon emissions. We helped increase solar generation. We were responsible for scores of full-time green jobs. Taken together, the DCSEU exceeded all six of its minimum benchmarks in FY 2017, and exceeded four out of six maximum performance goals.

These results are a clear achievement, and a solid first step in a longer commitment to building a sustainable energy future in the District. With the shift from one-year contracts to a five-year contract beginning in FY 2017, the DCSEU is now in a prime position to serve the District well for years to come.

In high school, my teacher once asked us: Think of a house that has three floors. The first floor is made of paper. The second floor is made of cardboard, and the upper level is built of brick. What is wrong with this house?

We got the answer quickly: It is missing a solid foundation.

Across the past six years, I have been thinking again and again about that day in class. The lesson reminds me of the DCSEU. Previous year-to-year contracts made it difficult to build a solid foundation for long-term projects. We thought and worked in terms of making sure projects closed before September 30, the last day of each fiscal year. Now, with our new five-year commitment, we are able to collaborate with our customers on long-term projects reaching into the future.

This past year, there were ample opportunities to expand the DCSEU's range of expertise. We trained many new people as we worked to regrow our staff; the DCSEU had gone from a staff of 48 employees in April of 2016 to a low of 37 employees in February of 2017 and, finally, to 44 employees by the end of FY 2017. Finding and training District residents as new employees was particularly important to us during the past year—only with their talent and expertise is the DCSEU able to achieve the results that make it an extraordinary sustainable energy utility.

Our new house will be modern, innovative, and well-built. The new contract's larger emphasis on the DCSEU's energy savings goals changes the way we deliver results. This opportunity for a more sustainable and forward-looking approach spurs the DCSEU to become more innovative in our delivery of cost-effective energy savings and gives the DCSEU the opportunity to create community-focused impact via financing and leveraging. This will require and facilitate building stronger partnerships and tapping wider networks of ideas.

The Department of Energy & Environment envisions the District as a model of innovative policies and practices that improve quality of life and economic opportunity. They want to demonstrate that investing in a diverse, clean economy and reducing disparities among residents can result in an informed, equitable, and prosperous city. The DCSEU will do its part to fulfill this vision by saving residents and businesses money, improving the overall well-being of the District through the affordable use of clean energy. We deeply appreciate having this exceptional opportunity to be part of the District's plan for the next four years.

Ted Trabue

TED TRABUE,
MANAGING DIRECTOR

FY 2017

HIGHLIGHTS

\$144 MILLION
IN LIFETIME ENERGY
COST SAVINGS
FOR CUSTOMERS

ENOUGH ELECTRICITY
SAVED TO POWER
9,300 HOMES
IN DC FOR A YEAR¹

ENOUGH
GAS
SAVED
TO HEAT
DUNBAR HIGH
SCHOOL FOR
130
YEARS²

\$3.4 MILLION
INVESTED WITH
CERTIFIED BUSINESS
ENTERPRISES

84 GREEN JOBS
CREATED AT
DC'S LIVING WAGE

\$3.8 MILLION INVESTED IN
ENERGY EFFICIENCY FOR
LOW-INCOME COMMUNITIES

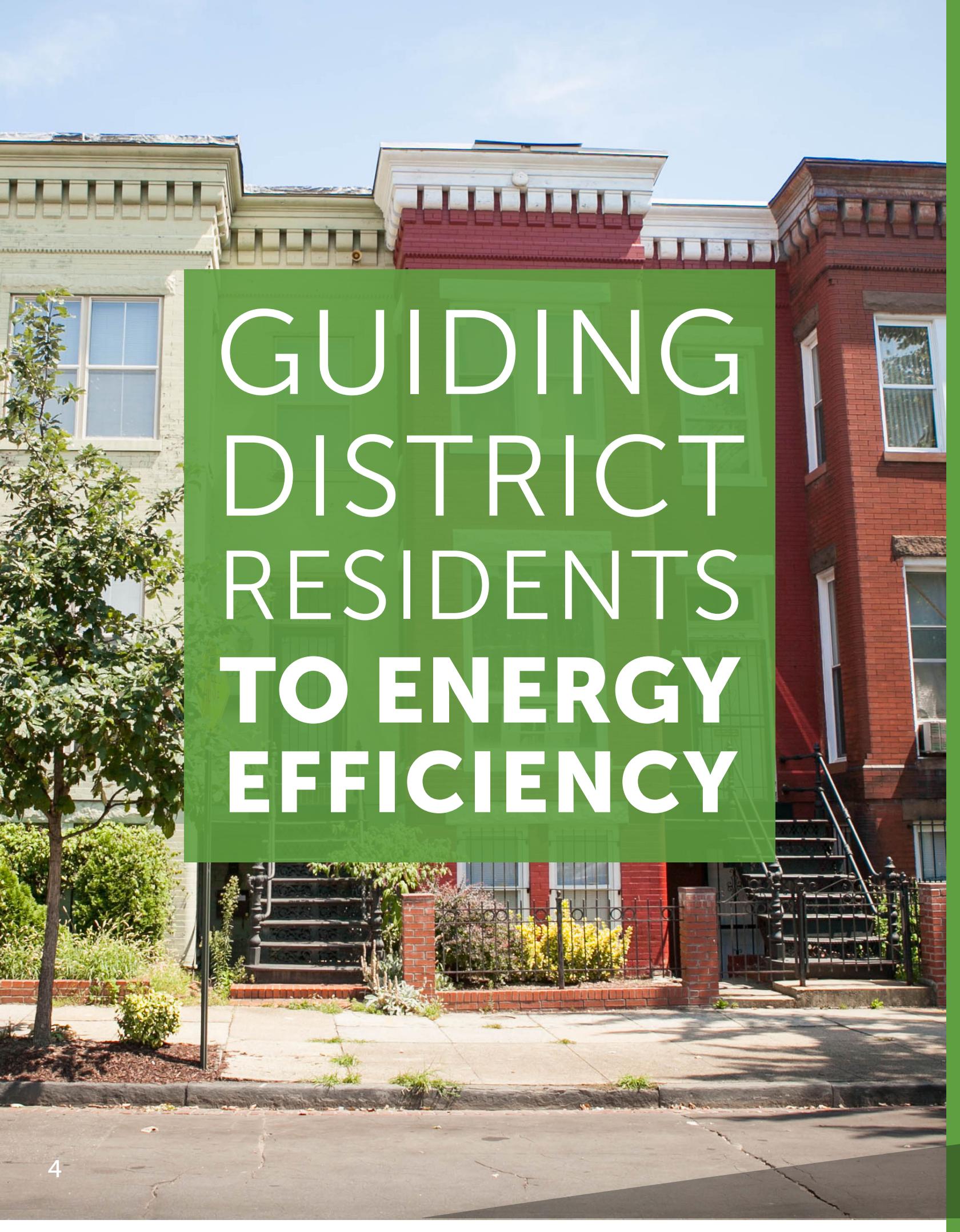
962,000 TONS
OF CARBON
EMISSIONS PREVENTED
THE EQUIVALENT EMITTED BY
CONSUMING **98 MILLION**
GALLONS OF GASOLINE³

\$820,000
IN ANNUAL ENERGY
COST SAVINGS
IN LOW-INCOME
COMMUNITIES

¹http://eia.gov/electricity/sales_revenue_price/xls/table5_a.xlsx; average residential monthly energy use in DC is 841 kWh.

²<http://www.buildsmartdc.com/buildings/278>; Dunbar's average annual gas usage over previous 2 years was 15,426 therms. The DCSEU's annual gas savings was 2,117,166 therms in FY 2017.

³<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>; carbon emissions prevented is present and future impact over the life of the equipment installed.

A photograph of a row of townhouses. On the left is a light-colored stone building with a large window. In the center is a red brick building with a white cornice. On the right is another red brick building with a black metal fire escape. A green rectangular overlay is centered over the middle of the image, containing white text. The background shows a sidewalk, a street, and some greenery.

GUIDING DISTRICT RESIDENTS TO ENERGY EFFICIENCY

RESIDENTIAL

Since FY 2011, the DCSEU has been the primary resource for energy savings for District residents, at every economic level, in all eight Wards. Committed to helping customers understand how to reduce energy use in their homes and which efficient products they should consider, the DCSEU enables customers to have greater access than ever before to the latest and most efficient (and cost-effective) technologies.

In January, the DCSEU phased out its upstream buy-down of compact fluorescent light bulbs (CFLs) and lowered the base price of DCSEU-discounted omnidirectional ENERGY STAR® qualified light-emitting diodes (LEDs) to 95 cents each at partner retailers across the city. For the first time, the DCSEU offered a \$100 rebate on qualifying ecobee, Honeywell, and Nest smart thermostats—a rebate of 40 percent or more of the total cost of the equipment. The DCSEU also offered rebates on residential efficient appliances and water heaters, and on heating, ventilation, and air conditioning (HVAC) equipment.

Throughout the year, the DCSEU helped customers become aware of discounted efficient products by working closely with partner retailers, increasing point-of-purchase marketing, and conducting in-store LED lighting demonstrations. In the summer of 2017, the DCSEU also launched a Home Energy Conservation Kit pilot program. The program distributed the kits to approximately 3,000 District households, giving each household six omnidirectional LEDs, an advanced power strip, and a bathroom faucet aerator. The strategy was a new way to familiarize customers with basic energy-efficient technologies and encourage them to continue investing in energy-saving products.



219,000
EFFICIENT PRODUCTS
SOLD



\$13 million
IN LIFETIME ENERGY
COST SAVINGS



37,000+
PARTICIPANTS IN DCSEU
RESIDENTIAL REBATES

A BOX FULL OF SAVINGS

When it comes to saving energy, small changes at home can go a long way to lowering utility bills. The Home Energy Conservation Kits distributed by the DCSEU in FY 2017 each contained six omnidirectional A 19 LED bulbs, a one gallon-per-minute maximum bathroom faucet aerator, an advanced power strip, and information on each product and how it improves home energy efficiency. When integrated into the household, each kit's contents could result in average annual savings of about \$30 or roughly 245 kWh of electricity and 0.03 mcf of natural gas savings.

Samuel Irwin, a recent graduate renting a home in Shaw, was happy to receive his kit. He had asked for one because he believes in the value of a sustainable energy future, and feels a personal commitment to reducing fossil fuel energy use wherever possible.

"Receiving the DCSEU energy efficiency kit was fast and straightforward. I was excited with how quickly it arrived and extremely happy with the nice range of energy-saving items that were provided in the kit," he said.

The pilot program distributing the kits was something that, in Irwin's opinion, was accessible and useful to all DC residents. He recognized that everyone can easily minimize environmental harm, save energy, and lower bills by reducing home electricity and water consumption.

In total, 3,278 households signed up for a kit. Of those, 426 were income-qualified residents who received it through a cooperative arrangement with the Department of Energy & Environment (DOEE). The Low Income Home Energy Assistance Program (LIHEAP) distributed the kits at its centers on Taylor Street in Petworth and Martin Luther King Jr. Avenue in Anacostia. Additional kits are still being distributed by DOEE at its service centers.



GETTING SMART WITH DISTRICT HOMES

If everyone used a smart thermostat, the U.S. Environmental Protection Agency (EPA) estimates the United States would save 56 million MMBTUs of energy and offset 6.5 million tons of greenhouse gas emissions each year. That's equivalent to the emissions of 1.2 million vehicles⁴.

Smart thermostats are great tools to optimize a home's energy use and that is why the DCSEU continues to promote progressive smart thermostat technologies through its Residential Efficient Products Program. According to the EPA, half of the average American household's energy bill, or approximately \$900 a year, goes to space heating and cooling. Offering substantial incentives for smart thermostats is another way for the DCSEU to offer the most effective savings technologies at reasonable prices.

In FY 2017, 2,568 District residents received \$100 rebates on qualified smart thermostats from ecobee, Honeywell, and Nest. A unique collaboration between the DCSEU

and Nest made it possible for residents to receive a coupon code on the DCSEU website, which could be redeemed immediately on a purchase made on the Nest website for an instant rebate.

This is the first time the DCSEU offered convenient instant rebates on smart thermostats. Nest then released its new Nest Thermostat E on August 31, which is offered at a lower price point. After the DCSEU's rebate, the sales price for the Nest Thermostat E for qualifying DC residents was below \$100. "The DCSEU focuses on delivering customer-centric solutions that produce tangible results for the residents of Washington, DC," said Dave Bend, Head of East Coast Partnerships. "Nest looks forward to continuing and deepening our partnership in the future."

⁴https://www.energystar.gov/products/heating_cooling/smart_thermostats



LOW INCOME

Recent economic assessments of the District of Columbia have shown that while the city's economy continues to grow rapidly, many of its residents are societally left behind. In fact, DC has one of the largest income gaps in the country. Reducing the energy burden on low-income communities is a first step toward a more equitable and fair society.

Studies show that low-income families spend a large share of their wages on energy costs. Reducing this burden means that they can dedicate more money towards things that matter the most to them. Energy justice—the application of ethical principles to reducing the energy burden on disadvantaged and vulnerable populations—is one of the DCSEU's core values.

The longer-term contract enables the DCSEU to build on the solid foundation for future low-income work. In addition to affordable housing, institutions that serve low-income residents now also count toward the DCSEU's low-income goals. The new contract beginning in FY 2017 also contains a spending requirement and an energy savings performance goal for energy efficiency projects serving low-income communities.

In 2016 the DCSEU completed one of its first projects in homeless shelters, working with the House of Ruth women's shelter. In 2017, the DCSEU built a deeper relationship with the District's Department of General Services (DGS) and the Department of Human Services (DHS), both of which jointly run 24 shelters. The DCSEU is now helping with energy efficiency retrofits and renovations for many of these shelters. Every dollar a shelter saves on its operating costs can be reinvested in services for vulnerable District residents, and further improves the energy efficiency and durability of buildings.

In the last year, the DCSEU invested \$3.8 million in energy efficiency incentives that benefit low-income communities, completing projects in affordable housing and other facilities that serve low-income residents, such as foodbanks and shelters. All of these projects combined will result in annual energy costs savings of roughly \$820,000.



1,100+

INCOME-QUALIFIED
UNITS SERVED



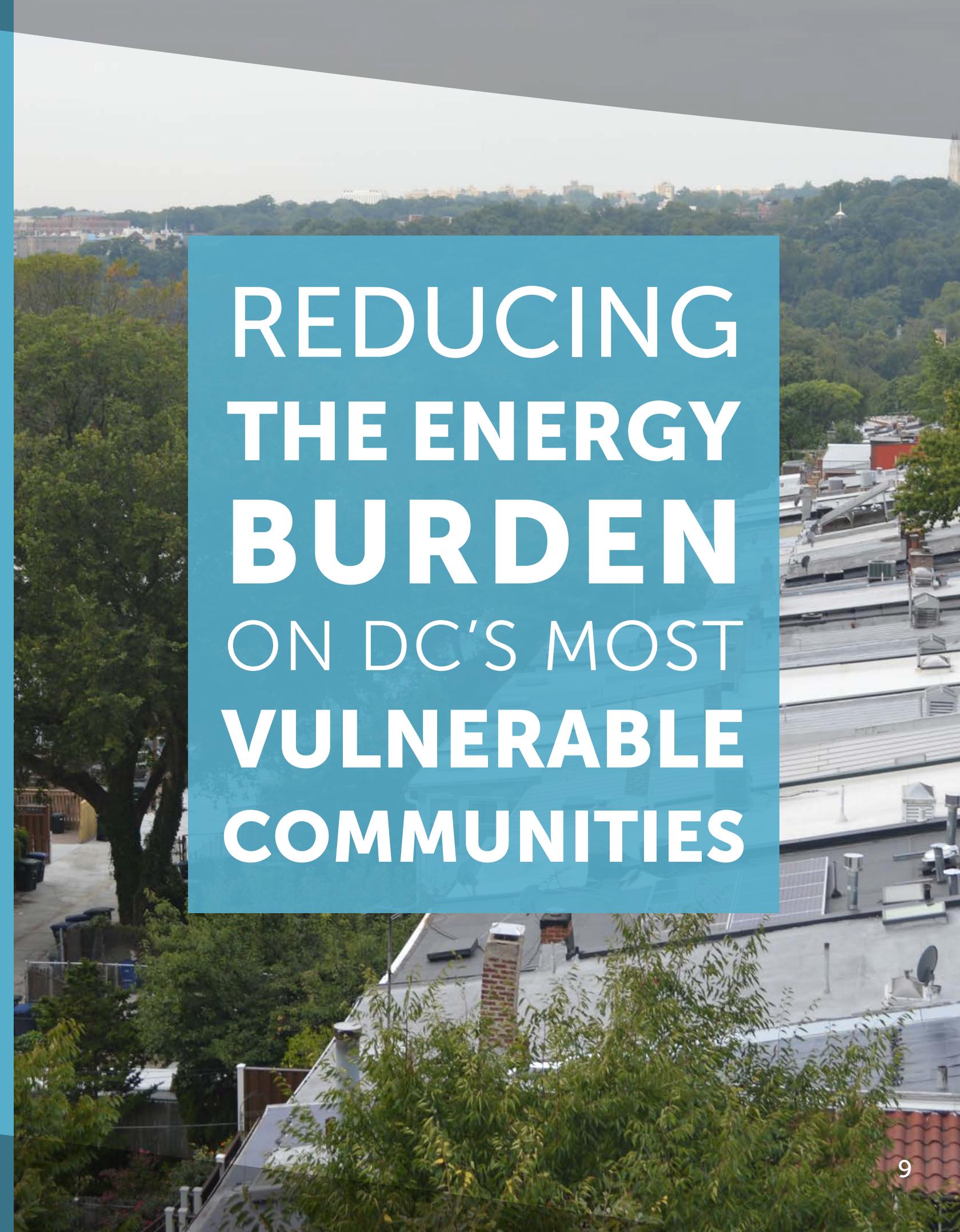
\$13 million

IN LIFETIME ENERGY
COST SAVINGS



1,700

RESIDENTS RECEIVED
EFFICIENT LED LIGHTING

An aerial photograph of a city, likely Washington D.C., showing a mix of green trees and urban buildings. A large, semi-transparent blue rectangle is overlaid on the center of the image, containing white text. The text is arranged in six lines, with the first three lines being the largest and most prominent. The background shows a dense urban area with various roof types, including flat roofs with HVAC units and satellite dishes, and some trees in the foreground.

**REDUCING
THE ENERGY
BURDEN**
ON DC'S MOST
**VULNERABLE
COMMUNITIES**

MAKING DC'S SHELTERS MORE SUSTAINABLE: THE BEGINNING OF A GREAT PARTNERSHIP

The DCSEU often works with District government agencies to transform buildings and institutions that offer services for DC residents. In cooperation with the Department of Human Services (DHS) and the Department of General Services (DGS) the DCSEU looks forward to renovating and upgrading many of the District-run shelters in the coming years. The first project in this collaborative effort was completed in September with energy efficiency updates at the Emery Shelter.

Now the hallways in the men's shelter are lit brightly with LEDs; new energy-efficient air conditioners blow cool air; a new boiler will provide reliable and adequate heat in the winter; and one of two hot water heaters has been replaced. Reducing operating costs also enables District agencies to direct the money they have saved from these upgrades toward other services that benefit vulnerable residents—and toward other building upgrades. The combined annual electricity and gas savings will reduce operating costs by more than \$30,000 per year. The upgrades will also prevent the emission of 180 metric tons of CO₂ annually.

"DGS is committed to operating its buildings as efficiently and effectively as possible. This project supports a healthier indoor environment while reducing energy costs for the city. We are already working with the agencies and organizations involved in this partnership to replicate this model across other shelters and buildings in order to elevate the quality of life for DC residents," said the Director of DGS, Greer Johnson Gillis.

The 100-bed shelter's primary objective is assisting men in obtaining and sustaining employment, and moving into permanent housing. The Emery House provides a stable temporary residential environment along with supportive services, including substance abuse counseling, job coaching, resume writing, and employment assistance. Residents also have access to a computer lab and a kitchen to prepare meals.

"DHS is overwhelmingly grateful for our partnership with the DC Sustainable Energy Utility. Public-private partnerships such as this one help us to achieve our mission of providing a warm, safe, and inviting place for all District residents during times of crisis," said DHS Director Laura Zeilinger.

The project exemplifies how different government agencies and programs collaborate to maximize the resources available to improve the energy performance of building stock owned and managed by the District. Certified Business Enterprises (CBEs) installed the lighting and equipment. Robert Saunders, a building operator at DGS responsible for the Emery Shelter, completed Building Operator Certification training offered by the DCSEU as part of its Workforce Development program. "The certificate really was a great guidance and helped me understand efficient HVAC operation and optimizing energy use in my 24-hour-buildings. The Emery Shelter was a great initial project, especially because it is one of our oldest buildings," Saunders said about his experience.

In total, DHS and DGS jointly operate 24 shelters. Currently, energy efficiency projects in partnership with the DCSEU are also under way at the New York Avenue Shelter and the Blair House. DGS, DHS, and the DCSEU are looking forward to working together throughout the coming four years, and are intensifying their joint effort to improve other shelters in the District.



DCSEU, DGS, and DHS staff pictured at the Emery Shelter.



FREDERICK DOUGLASS APARTMENTS' COOL MAKEOVER

Frederick Douglass Apartments has a 43-year history of providing affordable housing to people in the District. Located in the heart of Anacostia's Historic District, the community houses 150 families and offers a community garden and a playground. It is operated by Edgewood Management Corporation, one of the first affordable property management companies on the East Coast. Their mission is straightforward: Helping people improve their lives and maintaining high-quality and service-enriched affordable homes.

The DCSEU's shares these goals for services to District residents—to create brighter economic and environmental futures by reducing the energy burden on low-income communities. These objectives have become even more important in light of a recent report by the government-backed mortgage lender Freddie Mac, which demonstrates that the number of apartments considered affordable for very low-income families has fallen by 60 percent since 2010.⁵

As part of a renovation and energy efficiency upgrade, the DCSEU worked closely with the site managers of Frederick Douglass Apartments to deliver substantial energy cost savings and enhance the community's livability and sustainability. The DCSEU designed three phases for the project, upgrading the heat pumps to improve in-unit comfort with efficient heating and cooling. The project will result in annual energy cost savings of roughly \$45,000 and prevent the annual carbon emissions of 338 metric tons, the amount emitted by 72 passenger cars in one year of driving.

"The Frederick Douglass (Garden) Apartments were in need of replacing the HVAC units. We were approached by the DCSEU Community Outreach Manager Ted Diggs, who presented the options and reasons to collaborate with the DCSEU. The owners and upper management agreed to the project. We are excited that all residents have a new energy-efficient HVAC systems," said Cartise Hall, Community Manager at Frederick Douglass Apartments.

⁵ "Rental Affordability Is Worsening," 2017. Washington, DC: Freddie Mac Multifamily. October. http://www.freddiemac.com/multifamily/pdf/rental_affordability_worsening.pdf.

RENEWABLE ENERGY

Increasing access to affordable solar energy has been an ongoing objective since the DCSEU began operating in 2011. The DCSEU has been working continuously with DOEE to increase the city's solar energy capacity by offering installation incentives and lowering its cost. Through targeted and effective policies and programs, Washington, DC, has become a national leader in solar energy installation—and recognizes the significant potential for more investments in this clean-energy technology.

In the District, initial costs for installing rooftop panels and payback time frames rank among the nation's most favorable for consumers. Much of this is the result of strengthening the Renewable Portfolio Standard (RPS) in 2016, which obligates the District to meet 50 percent of its total energy consumption with renewable energy by 2032. The RPS contains a solar-specific target of 5 percent. Solar Power Rocks, which evaluates state policies, ranks DC ninth in the nation on its 2017 Solar Report Card. The District also earned an "A" Policy Grade for strong solar policy and effective, "extensive" rebate programs, one of which is solar programming operated by the DCSEU.⁶

While we have witnessed an explosion of solar installation in the city—from 9 MW in 2016 to 26 MW in 2017⁷—there is still ample, appropriate roof space available, in particular on federal buildings. This year, the DCSEU supported the federal government's access to solar energy. This cooperation enables the federal government to increase its utilization of cleaner and cheaper sun-powered electricity, and thereby lower its energy bills.

Federal properties make up the largest portfolio of buildings in the United States. In 2016, according to the U.S. Energy Information Administration (EIA), the government's overall energy consumption in its facilities has been on a steady decline since 1975, in part due to less energy consumed per square foot.⁸

To realize larger savings in fossil fuel electricity, the federal government is now placing new importance on solar energy and other renewable energy options.

Solar energy in particular is a very attractive option in Washington, DC. However, federal building operators still struggle with obtaining access to solar installation on a large scale. Barriers are security concerns, building age, and historical preservation priorities. The DCSEU works closely with the government and its contractors to help them undertake and complete energy improvement projects.



2,244 kW

OF RENEWABLE ENERGY
GENERATING CAPACITY
INSTALLED



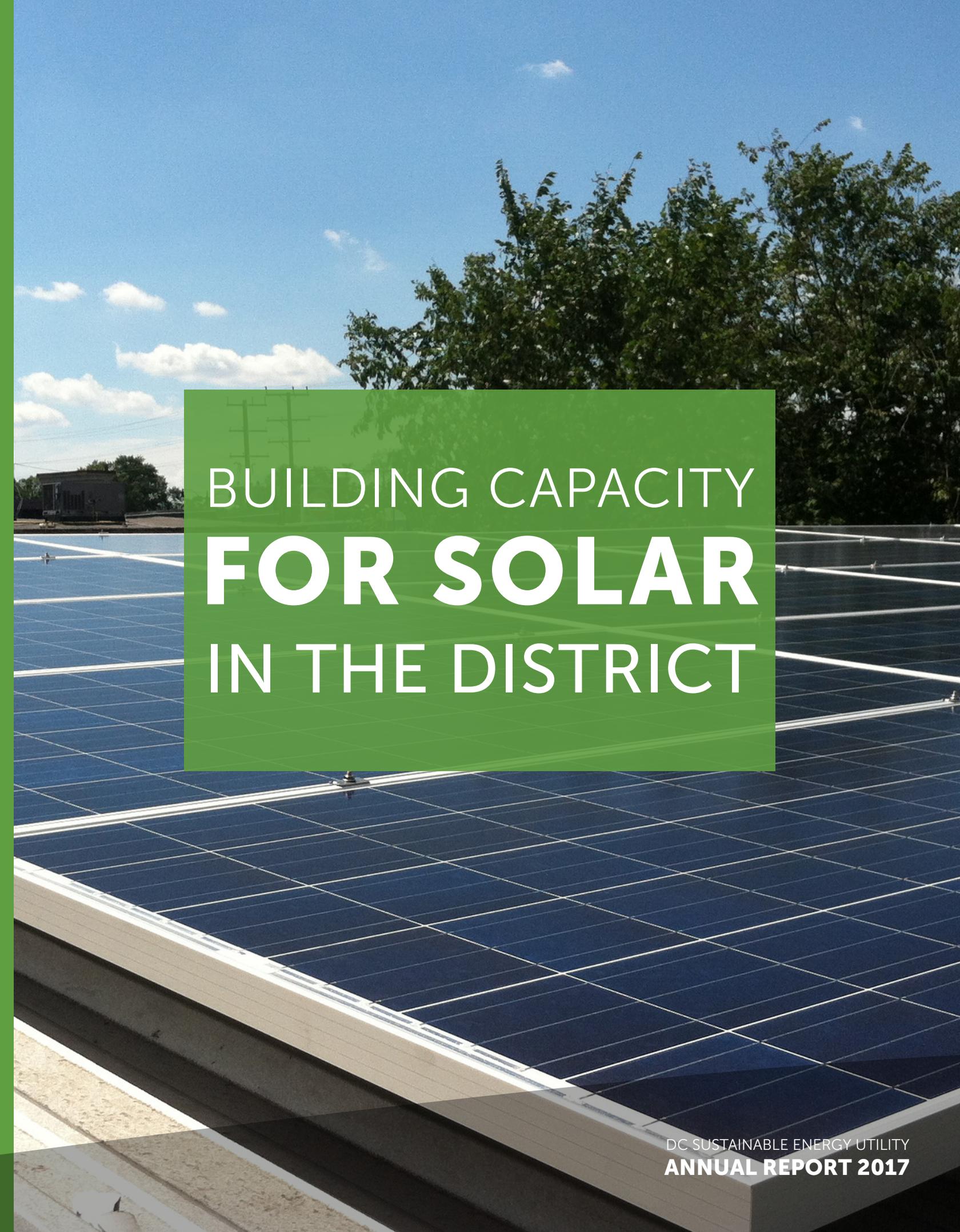
\$7.7 million

IN LIFETIME ENERGY
COST SAVINGS

⁶ 2017 Policy Grade, Washington, DC. Solar Power Rocks. <https://solarpowerrocks.com/washington-dc/>.

⁷ Washington DC Solar, Washington, DC. Solar Energy Industry Association. <https://www.seia.org/state-solar-policy/washington-dc-solar>

⁸ "Energy consumption by U.S. government at lowest level since at least 1975." 2015. *Today in Energy*, February 4. Washington, DC: EIA. <https://www.eia.gov/todayinenergy/detail.php?id=19851>.



BUILDING CAPACITY
FOR SOLAR
IN THE DISTRICT



CAPITAL SOLAR CHALLENGE: **POWERING THE GOVERNMENT WITH THE SUN**

Former President Barack Obama's agenda for meeting ambitious renewable energy goals is still ongoing in the District. One of them is the Capital Solar Challenge (CSC), a solar energy project providing almost two megawatts (MW) on federal and federally controlled buildings. The government initiated the projects while Obama was still in office, and the installations were completed during the fall of 2017.

Blue solar panels now shine atop seven buildings: the National Archives, the Wilbur J. Cohen Building which houses Voice of America, the building home to the U.S. Department of Health and Human Services, the American Indian Museum, GSA headquarters, the Smithsonian Museum of Natural History, and the Ronald Reagan Building and International Trade Center. The project is expected to generate almost 2,000 MWh of electricity annually. The clean-energy installations will also avoid 1,406 metric tons of carbon dioxide emissions per year, the equivalent of taking nearly 300 passenger vehicles off the road for one year.

President Obama launched the White House Capital Solar Challenge (CSC) in April 2014, directing federal agencies, military sites, and federally subsidized complexes to deploy solar energy across the National Capital Region. The former President tasked both the Energy Department and GSA to assist agencies to develop the respective sites. GSA's National Capital Region, the U.S. Department of Energy's (DOE) Federal Energy Management Program (FEMP) and the White House Council on Environmental Quality (CEQ) partnered to assist government agencies in implementing the initiative.

Ron Allard, former Energy Branch Chief of the National Capital Region at GSA (now retired), approached the

DCSEU in 2014 for help in bringing down the price of the solar installations. GSA and the DCSEU, already partners, were in the process of delivering \$1.34 million in annual energy cost savings between 2012 and 2015 through energy efficiency. This time, for the CSC, the mission was to accomplish a power purchase agreement price of \$0.04 per kWh, or a reduction of \$0.01 per kWh from prevailing rates.

The installations were completed by WGL Energy Systems (WGL Energy), a WGL company. The project partner designed, installed and owns all the panels, retains the solar renewable energy credits to improve project cost effectiveness, and sells the energy to the agencies. The DCSEU stepped in to support the project with an incentive of \$0.20 per watt installed. The newly lowered price was competitive and offered two advantages: First, it is well below the cost of grid power nationally, currently averaging \$0.11 per kWh; Second, what seems like a small improvement translates into \$5 million in utility cost savings over the 10-year period of the contract, according to WGL Energy.





**MAKING
EFFICIENCY
AFFORDABLE FOR
BUSINESSES
AND INSTITUTIONS**

COMMERCIAL AND INSTITUTIONAL

In 2017, the DCSEU designed new options for the Commercial and Institutional (C&I) market, bringing its services within reach for more customers with new, innovative solutions designed to lower barriers to participation.

For the first time, the DCSEU offered enhanced rebates to small and medium-sized businesses for qualified LED lighting, parking garage lighting products and fixtures, variable frequency drives (VFDs), and combinations of fixtures and sensors. In summer 2017, the DCSEU also partnered with four CBEs to launch Instant Business Rebates, an upstream lighting program allowing DC businesses to purchase qualified LEDs directly from participating distributors at discounted prices.

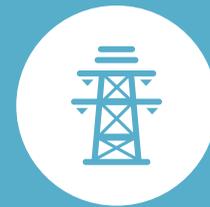
For larger energy users, the DCSEU expanded its Account Management platform for custom projects. The DCSEU hired two additional Account Managers in 2017, rounding out a team specialized in serving commercial real estate, hospitality, defense, federal buildings, hospitals, universities, and local retail markets.

With an emphasis on objective and reliable technical assistance, and offering a hub for collaboration between District and federal government agencies, developers, and private partners, the DCSEU facilitated the completion of energy savings projects in otherwise hard-to-reach markets. The DCSEU paid particular attention to public schools, government-owned shelters, and federal buildings.



\$60 million

IN ENERGY EFFICIENCY
IMPROVEMENTS



66,000 MWh

IN ANNUAL ELECTRICITY
SAVINGS



200+

BUSINESSES AND
INSTITUTIONS SERVED

HELPING A CUSTOMER GET AHEAD OF THE WEATHER

As buildings become more energy efficient and building codes evolve toward higher energy performance standards, the DCSEU seeks out new ideas, technologies, and partners. In March 2017, the DCSEU completed a pilot project with American University (AU) and MeteoViva, a German company, on AU's campus. The McKinley building, which was LEED Gold certified when the project started, saw an estimated drop of 42 percent in CO₂ emissions, and a drop of 36 percent in energy costs, resulting in a payback time of less than a year.

"The DCSEU has been a valuable resource and support system for helping the university achieve its energy reduction and efficiency goals," said Juan Allen, Energy Conservation and Energy Efficiency Manager at AU.

Named in honor of the assassinated President William McKinley and only the second building constructed on campus, AU built the structure in 1907. In 2014, the historic building underwent a large renovation, and today houses AU's School of Communication.

AU contacted DCSEU engineers midway through the project. The DCSEU confirmed the AU team's evaluation and calculations. "AU was a great partner, they were open to our new technology and willing to take some risk," said Jean-Marie Bergeal, CEO of MeteoViva Inc. and continues: "It was great to work with the DCSEU. Not only are the DCSEU's employees very detail oriented

and thoughtful, but the overall program holds great opportunities for the District of Columbia in general."

MeteoViva uses a model-based approach incorporating weather forecast data and building usage data to optimize the operation of a building's heating, ventilation and air-conditioning (HVAC) equipment. This enables buildings to anticipate weather changes and to adjust their operations in a more efficient manner, reducing both energy usage and hence costs, as well as CO₂ emissions. The technology has already been applied to large buildings in Germany, including Frankfurt International Airport, the European Central Bank, and BMW's headquarters in Munich.

In the United States, buildings are responsible for approximately 40 percent of emitted CO₂. This offers a large opportunity for emissions reductions technologies. MeteoViva's technology is especially effective for buildings located in regions with changing weather such as DC or with variable occupancy such as bigger office buildings, hospitals, and other large institutions.

Currently, AU is laying the groundwork for a similar project in its School of International Service, which is also housed in a LEED Gold certified building. The project is due to go live in December of 2017 with support from the DCSEU.



A HEALTHIER BOTTOM LINE FOR HOWARD UNIVERSITY HOSPITAL

Howard University Hospital (HUH) has been providing health services to the residents of the Washington metropolitan area for more than 145 years. A private, nonprofit institution, HUH is the nation's only teaching hospital located on the campus of a historically black university. It offers medical students opportunities to observe or participate in ground-breaking clinical and research work with professionals who are committed to the local and global advancement of health care and health equality.

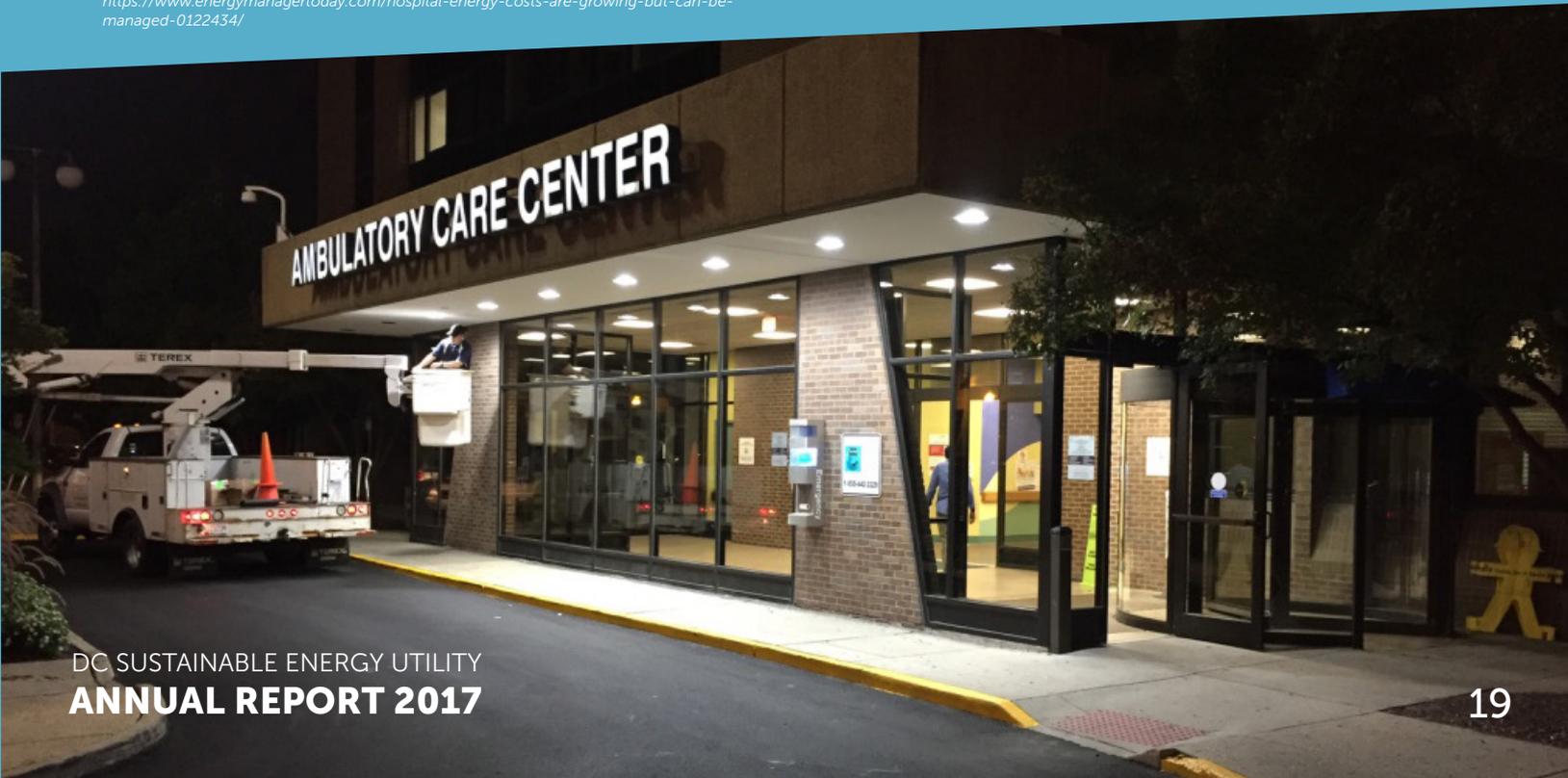
HUH teamed up with the DCSEU to install LED lighting on the exterior and first floor of the hospital, which contains the emergency room and its breakroom, hallways, staircases, and back entrance. The project resulted in lifetime energy cost savings of \$50,000, and has drawn positive feedback from staff and patients. Staff who work in shifts around the clock have noted positive effects of the upgrade, as the lighting enables them to adapt their natural circadian rhythms more easily. "The new lighting really makes a difference in the hospital, and I have noticed it a lot during my work. I often arrive at and leave the hospital when it is dark outside so the crisp bright light really makes a difference for me. It is also great that it benefits the environment and supports our hospital's

sustainability," said Dr. Edward Eugene Cornwall III, Surgeon-in-Chief, General and Critical Trauma Care. Dr. Cornwall graduated from Howard University School of Medicine in 1982 and became Surgeon-in-Chief in 2008.

The DCSEU is enthusiastic about working with hospitals because they have unique energy consumption patterns characterized by high savings potentials: They run 24 hours a day, seven days a week; use more energy-intensive equipment than most other businesses; and must meet high environmental standards, which can be challenging. But budgets are tight—experts estimate that hospitals spend twice as much as other businesses on energy-related expenses, or as much as 51 percent of their total budgets⁹. In some cases, hospitals have had to lay off staff to rebalance costs. However, experts also say that energy efficiency is a far more effective way to cut costs and keep quality standards high.

Now, HUH has received so much positive feedback about the new lighting that it is planning to expand the project to the second floor in FY 2018, with new lighting to be installed in stairwells and outside the hospital. The DCSEU is also currently working on a phased replacement of the steam pipe and trap replacement with contractor JCM, with the first phase to be completed in December 2017.

⁹ Hospital Energy Costs are Growing but Can be Managed," 2016. Carl Weinschenk, March 14. <https://www.energymanagertoday.com/hospital-energy-costs-are-growing-but-can-be-managed-0122434/>



AMBULATORY CARE CENTER

BACK TO THE ROOTS: BREWING BEER WITH THE SUN

Thor Cheston's vision of his artisan beer brewery is now complete. The DC native has installed solar panels and LEDs, and says he is sourcing more than 50 percent of the electricity from sustainable sources on the roof of his brewery, Right Proper Brewing Company in Brookland. Even the color of his beer reminds customers of sunshine.

For Cheston, transforming his brewery was a natural step. "I wanted to see beer for what it really is, and return to the roots of brewing," he said. Most beer production starts with grain, which thrives in the sun. By using solar power to brew the beer, Cheston believes it closes a circle. "Our beer starts and ends with the sun. I love that so much." The 39-year-old decided not to go to medical school at Georgetown University to follow his passion for beer. He also holds a Belgian Brewers' Knighthood, an honor bestowed on people who have made an exceptional contribution to the promotion of Belgian beer. In December 2013, after ten years in the restaurant industry, he opened his own Right Proper Brewing Company, which now has two locations; one in Shaw and one in Brookland.

His solar installation will total 65 kW of generation. The roof already holds 90 percent of the panels, and 10 percent will be installed on the canopy and comprise the blinds. The panels alone are expected to supply 72,500 kWh a year, meeting more than 50 percent of the brewery's energy needs. At the height of summer, Right Proper might be able to obtain 99 percent of its energy from the sun. Cheston has also retrofitted his lighting. Brand-new LEDs are now in his production and tasting rooms, and they also comprise his Christmas lights.

Cheston is not only extremely passionate about beer, but also concerned about the environmental impacts of his business. Brewing locally saves energy otherwise used in long-haul transportation, and produces two-thirds less CO₂ than commercially distributed beer. It also

creates local jobs. However, its production is still energy intensive. The process uses significant amounts of water, compressed air, lighting, and refrigeration.

Right Proper customers love how sustainable the brewery is, Cheston says. "During every brewing tour, I get lots of questions about that."

Cheston's brewery in Brookland faces south, with no nearby high buildings or trees to provide shade. "We are literally baked in the sun during the summer, and that sent our utility bills through the roof," he said. This phenomenon gave birth to the idea of using solar canopies and blinds. As a local, artisanal business, Right Proper's margins are small. Financially attractive solar power helps Cheston have a more sustainable business model. But he is still not finished with his solar projects. "I hope to bring the DCSEU to my restaurant in Shaw to reduce its footprint and improve its sustainability."



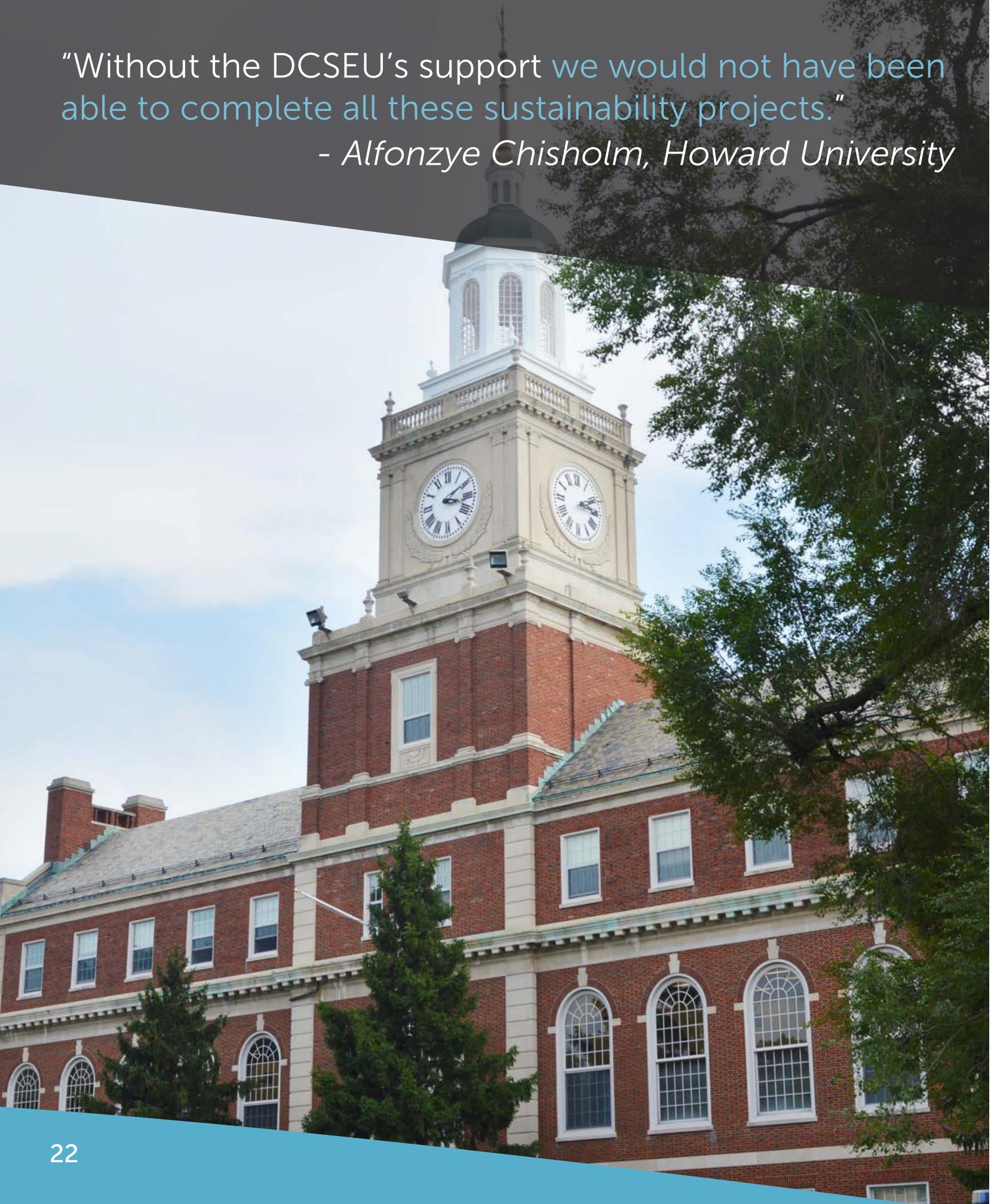


"I hope to bring the DCSEU to my restaurant in Shaw to reduce its footprint and improve its sustainability."

- Thor Cheston, Right Proper Brewing Company

“Without the DCSEU’s support we would not have been able to complete all these sustainability projects.”

- *Alfonzye Chisholm, Howard University*



SUPPORTING CAMPUS SAFETY THROUGH SUSTAINABILITY

The relationship between Howard University and the DCSEU has been growing steadily since 2012, with projects reducing gas and electricity consumption completed throughout the campus. These energy savings have resulted in more than \$10.5 million in lifetime cost savings, and have prevented lifetime emissions of 70,000 tons of CO₂—equivalent to generating electricity for more than 10,000 homes for one year. “Without the DCSEU’s support we would not have been able to complete all these sustainability projects,” said Alfonzye Chisholm, Director of Sustainability for Facilities Management at Howard University.

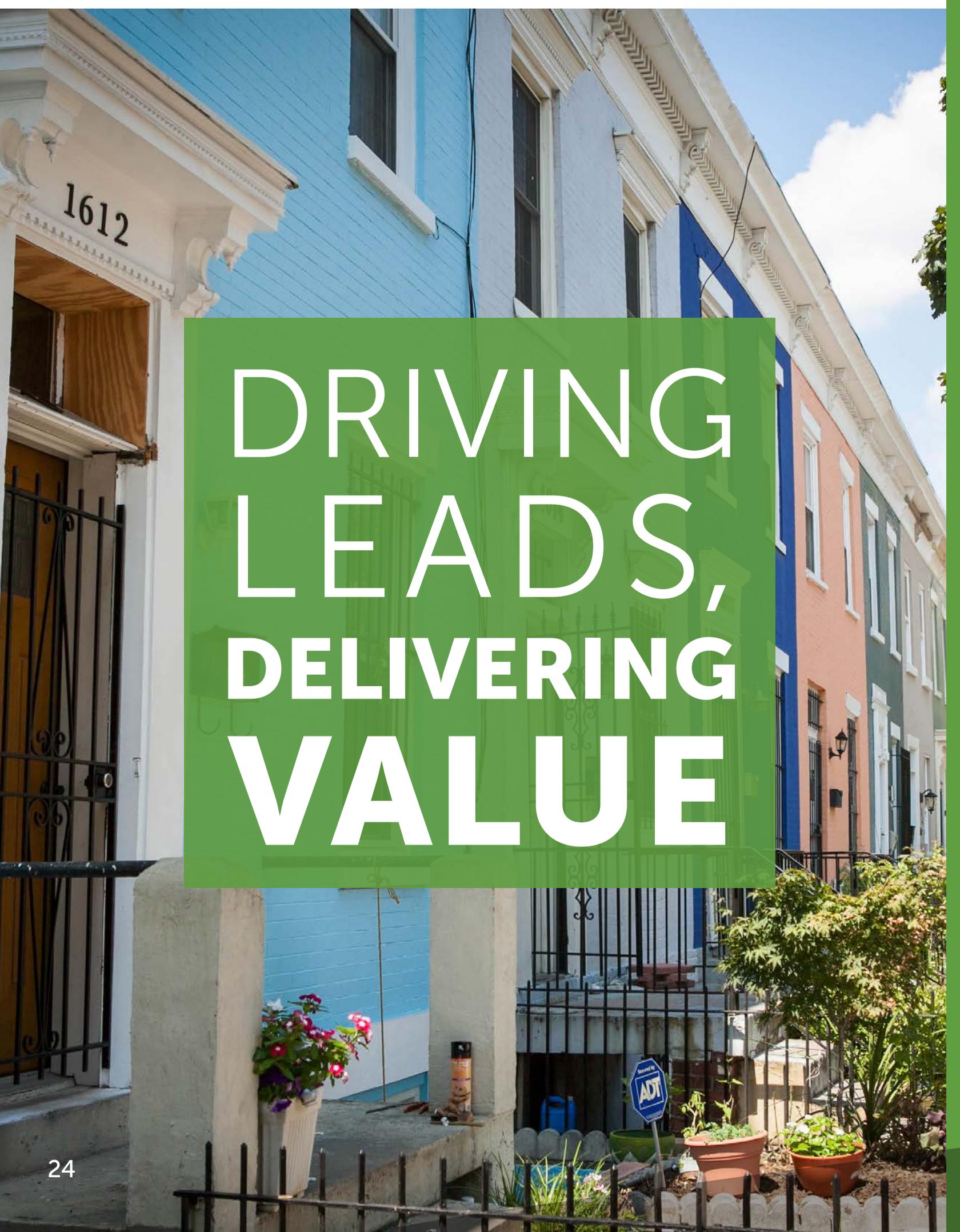
The latest project is an exterior lighting upgrade. The new installations, which boost lighting levels at the clock tower, on walkway paths, at the upper Quad, and in parking lots increase energy efficiency, decrease maintenance costs, and improve campus safety. This project fulfills several concurrent university objectives: reducing energy costs, beautifying the campus, and reducing overall footprint.

The project was completed by GB Energie LED, an African American, woman-owned business committed to sourcing sustainable energy solutions. “We are proud to work with the DCSEU and an academic institution such as Howard University, providing them with leading LED solutions to create a more energy-efficient, safe, and productive learning environment for its students and faculty,” said Dr. Gloria B. Herndon, CEO of GB Energie.

Bright light improves the sense of security for students, staff, and visitors walking through campus at night. At the beginning of the project, GB Energie LED and the

DCSEU participated in a night-time walkthrough with the Director of Campus Security. They identified poorly or dimly lit areas on campus, particularly parking lots and sidewalks, where safety could be compromised. “Adequate exterior lighting is a major concern for addressing campus community safety on any campus. The LED exterior lighting project is a proactive measure to reduce the opportunity for crime around our campuses,” says Alonzo Joy, Campus Police Chief. “The plan has greatly illuminated various areas, which reduces the likelihood of unwanted individuals from lurking in wait without being detected. This new lighting also elevates the quality of our students’ after-hours experience. In addition, the plan to use LEDs is a perfect match for our video surveillance system.”

For many universities, energy expenses represent the second largest spending category, right after personnel. Ramping up energy efficiency and reducing energy costs are necessary means to slow down tuition increases and create opportunities to fund new educational programs. The LED retrofit project at Howard University is expected to reduce lighting energy use by more than 50%, while improving light output levels considerably. “I am pleased that our five year collaboration with the DCSEU has resulted in improved campus safety and energy efficiency through improvements in energy utilization and installment of cost efficient lighting that will ultimately improve the campus experience for our students, faculty, and staff,” says Howard University Executive Vice President and Chief Operating Officer Tashni Dubroy.



DRIVING LEADS, DELIVERING VALUE

IN THE COMMUNITY

This year, the DCSEU increased brand awareness, developed leads for programs, and delivered high value to the community. From partnering with Burroughs Elementary School on STEM activities, to working with District agencies such as the Public Service Commission on its Winter Preparedness event, the DCSEU had a strong presence in the community throughout the year. The DCSEU and District agencies collaborated on reaching out to support hard-to-reach populations, including seniors and low-income residents. The DCSEU also distributed light bulbs and information at events with the Office on Aging, and provided hundreds of backpacks containing school supplies to students prior to the 2017-2018 school year, to ensure they were prepared for their first day.

For residential customers, the DCSEU made it easier to take advantage of rebates and to encourage participation in other DCSEU programs. Working with the smart thermostat vendor Nest, the DCSEU created an online coupon code tool that allows District residents to retrieve a promotional code that can be applied on the Nest website for an instant rebate. The DCSEU also partnered with retailers on events informing residents about rebates, and driving customer traffic to District retail partners. Finally, the DCSEU created a summer advertising campaign on smart thermostat and cooling rebates, with advertisements placed in print, digital, and outdoor media outlets. The DCSEU worked closely with the newspaper *El Tiempo Latino* on Spanish-language ads and outreach to the Spanish-speaking community. The summer campaign included a special advertisement for smart thermostats on Metro platforms. The ad automatically appeared whenever the temperature reached at least 90 degrees. It was the first time an advertiser has used weather-triggered ads in the Metro with Outfront Media.

For C&I customers, the DCSEU increased awareness about DCSEU rebates and about the value of its technical assistance. As part of its summer advertising campaign, the DCSEU ran advertisements in the Washington Business Journal and through Google Adwords. These drove customers to DCSEU lighting rebates and customer success stories. In addition, the team also partnered with CBE distributors to drive participation in the DCSEU's Instant Business Rebates program. The team created custom materials for the distributors, and held events at two distributor locations to drive traffic to the program. Finally, the DCSEU worked closely with C&I customers to shed positive light on each customer's work and on the value delivered by the DCSEU.

In FY 2017, the DCSEU also hired a public relations project manager to tell the DCSEU's story through earned media. The project manager also worked with customers to highlight their interaction with the DCSEU, work that will continue in FY 2018 and beyond. The DCSEU had the highest website traffic in its history this year, with more than 100,000 visits. It also continued its growth on social media—results the DCSEU will build on in FY 2018.



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MEDIA MENTIONS



24%

INCREASE IN VISITS TO THE DCSEU WEBSITE



54%

INCREASE IN FANS ON FACEBOOK



16%

INCREASE IN TWITTER FOLLOWERS

GREEN JOBS

With a goal of creating a brighter economic and sustainable future for the District, the DCSEU helps shape the local clean-energy labor market and has a positive impact on the city's economy. Looking back on FY 2017, the DCSEU created an equivalent of 84 full-time green jobs and spent \$3.4 million on work involving CBEs.

The DCSEU almost exclusively hires District residents to work in its office. In FY 2017, it hired a total of 10 people. Two of the new hires were graduates of the Workforce Development Program (WDP), the DCSEU's externship training program for green career development.

This year, the WDP began with two cohorts of externs, one in January and one in July. With a total participant count of 16, the students represent many different backgrounds and interests. The program addresses diverse sectors of employment and certifications. For example, students learn about engineering, program management, energy consulting and auditing, project assistance, HVAC operation, and electrical contracting. In addition to the externship program, the WFD team conducted a pilot offering a no-cost Building Operator Certification program.

The program consists of six months of paid externships with DCSEU partners, where externs gain hands-on job experience. The externships are complemented by weekly classes at the DCSEU office, where students learn about career development and goal setting, and attain practical knowledge about energy efficiency-related topics such as lighting and HVAC. For the first time, the curriculum this year also involved training for LEED and Microsoft certification. The DCSEU guides externs throughout the entire length of the externship, and offers support and counseling concerning job placement. Further, the DCSEU has an open-door policy that offers advice and other guidance to externs, even after they have completed their externships.

The Workforce Development Program is possible only because of the DCSEU's committed and engaged external partners: University of the District of Columbia (UDC), Community College Preparatory Academy, United Planning Organization, Thompson Facilities, and Howard University.



95%

OF DCSEU EMPLOYEES
ARE DISTRICT RESIDENTS



\$3.4 million

SPENT WITH CBES



100%

OF DCSEU EXTERNS FOUND
FULL-TIME EMPLOYMENT



**CREATING
JOBS AND
ECONOMIC
OPPORTUNITY
IN THE DISTRICT**

“My ultimate goal and dream is to build housing that is 100% energy efficient.”

- *Shawn Jackson, Workforce Development Extern*



Pictured: Shawn Jackson, Workforce Development extern (left) and Gleniss Wade, DCSEU Workforce Development Program Manager (right)

GETTING READY FOR JOBS OF THE FUTURE

Shawn Jackson is actually a little afraid of heights. The 22-year-old solar installer just finished placing 260 panels on top of a DC school with three different roof heights. When he had to lean over the edges to hand down the rope, he felt unsure of himself. But turning his head back to look at the solar panels he had just installed, his passion for putting the panels together helped him to overcome that shaky feeling.

"I am just in love with this", he said with a smile. Jackson, a native Washingtonian, is part of the fall / winter cohort of the DCSEU's Workforce Development Program, which will conclude in January 2018. The program helps District residents who are unemployed or underemployed, or who want to shape their professional profiles to become competitive in the green workforce market. It consists of two parts: Classes at the DCSEU, and a paid externship with one of the DCSEU's partner companies.



While completing his six-month externship with Greenscape Environmental Services, Jackson attended weekly classes about career building and energy markets at the DCSEU office. Learning about diverse topics such as time management, LED retrofitting, solar renewable energy credits (SREC) investments, and customer service has helped him define and advance his professional skill set. For him, it's also about the people: "I love working with everyone in my team and here at the DCSEU."

Employees with expertise and competence in renewable energy and energy efficiency are in high demand. Just recently, the U.S. Bureau of Labor Statistics released a report stating that "solar installer" is the fastest-growing job in the country, and that green jobs, in particular, are the jobs of the future. The Bureau predicts the number of solar panel installers to increase by 105 percent by 2026, whereas the number of wind turbine technicians will grow by 95 percent over the same time frame.

Before Jackson joined the program, he was working in plumbing. His real aspiration was to trade that job for an engineering one, and to be a part of the clean energy of the future. So when a friend told him about the DCSEU's Workforce Development Program, he applied immediately. He would recommend it to anyone who wants to attain more education and training. "I love the life-coaching and Mrs. Wade is awesome," Jackson said about Gleniss Wade, Program Manager of the DCSEU's Workforce Development Program.

In the future, he hopes to work as a contractor for Greenscape or even with the DCSEU. "But my ultimate goal and dream is to build housing that is 100 percent energy efficient."



MORE
RESOURCES,
MORE
SAVINGS

LEVERAGING

The DCSEU's new five-year contract brings with it new goals for leveraging \$5 million in new funds to help meet the energy savings benchmarks and increase the DCSEU's energy savings impacts. To meet these leveraging goals, the DCSEU continued to use financing mechanisms and monetize energy savings, while also adding staff who can design a strategy to secure a diversified and stable stream of resources. In addition, the DCSEU worked with DOEE to ensure the necessary mechanisms are in place for tracking and accepting leveraged dollars.

In FY 2017, the DCSEU continued its work to monetize the energy savings of eligible projects in the PJM Reliability Pricing Model (RPM) Capacity Market this year, securing approximately \$240,000 in revenue. These funds will be used to fund future DCSEU programs. The DCSEU will continue bidding into the PJM RPM Capacity Market in FY 2018 and is working with third-party aggregators to maximize PJM revenue. The team also continued to work with its Energy Efficiency Financing Platform partners to provide customers access to financing that allows them to complete energy efficiency projects. The team held a joint workshop with DC PACE in January 2017 and participated in several presentations with DC PACE. The DCSEU also received a \$15,000 seed award to participate in the U.S. Department of Energy's SunShot Prize: Solar in Your Community Challenge.

To increase its revenue stream, the DCSEU's financial leveraging team also grew this year. The DCSEU hired both a Development Manager and a Solar Associate in FY 2017. The Development Manager is supporting the DCSEU's efforts to obtain the additional \$5 million in revenue, and is significantly increasing the DCSEU's outreach to potential funders, partners, and sponsors. The Solar Associate will support the DCSEU's renewable energy efforts by searching for opportunities to obtain solar resources in the District and helping residents and businesses access renewable technology.

With well-qualified staff and appropriate mechanisms now in place, the DCSEU looks forward to increasing its impact and energy savings through financial leveraging activities over the next four years.

FY 2017

INITIATIVES



RESIDENTIAL

EFFICIENT PRODUCTS

Discounts on LEDs with retail partners in DC; mail-in rebates for qualifying energy-efficient appliances; energy efficiency kits; distribution of LEDs and kits to income-qualified residents through DOEE distribution centers

Customer: DC residents

HOME PERFORMANCE WITH ENERGY STAR¹⁰

Rebates for energy efficiency improvements: air and duct sealing, insulation, and heating system improvements

Customer: DC single-family homeowners

INCOME-QUALIFIED SERVICES¹¹

Home energy improvements such as air and duct sealing, insulation, and heating system improvements

Customer: Pre-enrolled DC single-family homeowners meeting income requirements

¹⁰Discontinued on March 31, 2017.

¹¹Discontinued on March 31, 2017.



LOW-INCOME MULTIFAMILY

LOW-INCOME MULTIFAMILY COMPREHENSIVE

Custom technical and financial assistance for energy efficiency improvements to income-qualified multifamily properties

Customer: Property owners of multifamily buildings, shelters, and clinics serving income-qualified DC residents

LOW-INCOME MULTIFAMILY DIRECT SERVICES

Direct installation of energy efficiency measures in income-qualified multifamily properties

Customer: Property owners of multifamily buildings, shelters, and clinics serving income-qualified DC residents



RENEWABLE ENERGY

COMMERCIAL SOLAR

Incentives and financing to install solar PV systems

Customer: Commercial business owners

SOLAR THERMAL

Incentives to install solar thermal arrays to provide hot water and reduce natural gas consumption

Customer: Income-qualified cooperative housing and property owners of multifamily buildings serving income-qualified DC residents



COMMERCIAL AND INSTITUTIONAL

BUSINESS ENERGY REBATES

Rebates for energy-efficient lighting, heating, refrigeration, cooking, and other qualifying equipment

Customer: Business owners

COMMERCIAL DIRECT SERVICES

Direct installation of energy efficiency measures at primarily small and medium-size commercial businesses

Customer: Business owners

INSTANT BUSINESS REBATES

Discounted energy-efficient lighting through CBE distributors

Customer: Business owners

COMMERCIAL AND INSTITUTIONAL CUSTOM

Technical assistance, account management, and financial incentives for energy efficiency projects

Customer: Large commercial and institutional customers

PERFORMANCE BENCHMARKS

NATURAL GAS SAVINGS AND ELECTRICITY SAVINGS

DCSEU initiatives in FY 2017 resulted in an annual reduction of 2,117,166 therms in natural gas consumption. This exceeds the Performance Benchmark maximum annual target for natural gas savings. Electricity consumption was reduced by 93,958 MWh, which exceeds the Performance Benchmark maximum annual target.

RENEWABLE ENERGY GENERATING CAPACITY

In FY 2017, the DCSEU completed 2,244 kW in installed solar capacity, exceeding the Performance Benchmark maximum annual target.

LOW-INCOME SPENDING

The DCSEU spent \$3,898,925 on energy efficiency projects in low-income communities. This exceeds the Performance Benchmark maximum annual target for low-income spending.

LOW-INCOME SAVINGS

The DCSEU significantly reduced energy use in low-income communities, with a combined electricity and thermal savings of 29,738 MMBTU. This exceeds the Performance Benchmark minimum annual target.

GREEN JOBS

All DCSEU jobs and contractor positions, both internal and external, are offered at or above the District's Living Wage. In FY 2017, the DCSEU created 84 FTE jobs, exceeding the Performance Benchmark minimum annual target.

LEVERAGING

The DCSEU leveraged \$395,970 in FY 2017 toward its five-year cumulative Performance Benchmark of \$5,000,000.

TABLE 1. FY 2017 CONTRACTUAL BENCHMARKS AND TRACKING GOALS

	BENCHMARK	DESCRIPTION	FY 2017 ACTUAL	FY 2017 MIN TARGET	% TO MIN	FY 2017 MAX TARGET	% TO MAX
PERFORMANCE & CONTRACTUAL BENCHMARKS ¹²	Total Electric Savings	Electricity saved to date in this fiscal year. Measured in MWhs.	93,958	60,878	154 %	86,473	109 %
	Total Gas Savings	Natural gas saved to date in this fiscal year. Measured in therms.	2,117,166	852,565	248 %	1,705,130	124 %
	Total Installed Renewable Capacity	Total electricity generating capacity of solar PV panels installed in this fiscal year. Measured in kW.	2,244	650	345 %	1,000	224 %
	Total Low-Income Savings	Total energy saved in low-income households to date in FY 2017. Actuals are comprised of natural gas savings, plus the MMBTU equivalent of electric savings. Measured in MMBTUs.	29,742	23,278	128 %	46,556	64 %
	Total Low-Income Spend	Total amount spent on low-income households to date in FY 2017.	\$3,898,925	\$3,835,833	102 %	\$3,835,833	102 %
	Total Green Jobs	Work hours generated by direct contractor hires, internal staff, and an estimate based on incentives spent on customers. Measured in full time job equivalent (FTEs) ¹⁴ .	84	66	127 %	88	95 %
	Leveraged Funds ¹⁵	Total dollars leveraged across five-year contract period.	\$395,970	\$2,500,000	15.8 %	\$5,000,000	8 %
	CBE Spend ¹⁶	Amount spent with Certified Business Enterprises in this fiscal year.	\$3,445,731	\$2,217,753	155 %	\$2,217,753	155 %
	Electric Spend	Total amount of expenditures attributed to electric savings.	\$13,901,281	\$11,507,500	121 %	\$15,343,334	91 %
	Gas Spend	Total amount of expenditures attributed to natural gas savings.	\$5,272,900	\$2,876,875	183 %	\$3,835,833	137 %
TRACKING GOALS ¹³	Total Budget Spend through 9/30/2017	Total amount spent in this fiscal year.	\$19,172,978	\$19,179,167	100 %	\$20,000,000	96 %
	Summer Peak Demand	Load reduction during the Summer seasonal period. Measured in Net kW.	12,934	—	—	—	—
	Largest Energy Users	Number of large energy users (buildings > 200,000 ft ²) with whom we have completed projects in this fiscal year. Measured in number of companies.	100	30	333 %	50	200 %

¹²Requirement of the contract and financial bonuses and / or penalties can be issued.
¹³Requirement to track no financial bonus or penalty associated.

¹⁴1 FTE = 1,950 hours worked by District resident or \$200,000 in incentives.

¹⁵Leveraging is a five-year, cumulative performance benchmark.

¹⁶Requirement of the contract based on District law, financial penalty can be issued by DSLBD.

ELECTRICITY SAVINGS BY SECTOR

Overall electricity consumption in FY 2017 was reduced by more than 93,000 MWh. Approximately 70 percent of total electric savings came from the Commercial and Institutional core area.

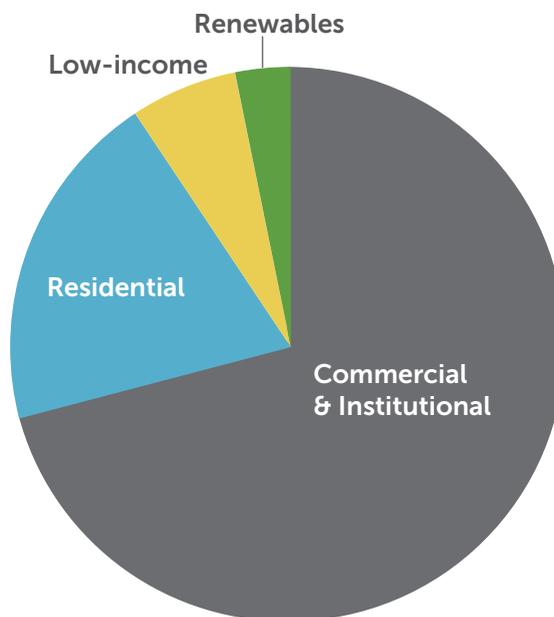


FIGURE 1. ELECTRICITY SAVINGS BY CORE AREA, IN MWH.

ECONOMIC BENEFITS

TABLE 2. LIFETIME ECONOMIC BENEFITS AND ANNUAL CUSTOMER SAVINGS

	RESIDENTIAL CUSTOMERS	COMM. & INST. CUSTOMERS	TOTAL
Lifetime economic benefits ¹	\$26,613,275	\$111,527,606	\$138,140,881
First-year annual energy cost reduction ²	\$3,147,594	\$8,985,195	\$12,132,789

¹Lifetime economic benefits are defined as the present value of the avoided cost of energy for the life of each measure installed.

²First-year annual energy cost reduction equals the estimated savings in energy costs, at average retail rates, for the first 12-month period in which the efficiency and / or renewable energy measures are in operation.

EXPENDITURES-ACTUAL

TABLE 3. FY 2017 ACTUAL EXPENDITURES

IMPLEMENTED ENERGY SERVICES	ACTUAL EXPENDITURES
Residential Initiatives	\$2,835,630
Low-Income Multifamily Initiatives	\$4,748,481
Renewable Energy Initiatives	\$483,422
Commercial Initiatives	\$8,003,015

SUPPORT SERVICES	ACTUAL EXPENDITURES
Administration	\$2,107,817
Information Technology	\$375,347
Compliance	\$170,662
Workforce Development	\$448,604

TOTAL	\$19,172,978
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UTILITY



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