National Capital Region Climate and Energy Progress Report

July 2014 Draft

Prepared by the
Metropolitan Washington Council of Governments
Climate, Energy and Environment Policy Committee

**METROPOLITAN WASHINGTON
Council of Governments**

Roger Berliner, Chair
Climate, Energy and Environment Policy Committee

The Climate, Energy , and Environment Policy Committee (CEEPC) supports the *Region Forward* vision by COG and its members to create a more prosperous, accessible, livable, and sustainable region. CEEPC provides leadership on climate change, energy, green building, alternative fuels, solid waste and recycling to meet the region's regional greenhouse gas (GHG) emission reduction goals of 20% below the 2005 levels by 2020 and 80% below 2005 levels by 2050. In May 2013, CEEPC adopted the second addition of an aggressive Regional Climate and Energy Action Plan.

As you will see in the following pages, there is significant effort in National Capital Region to address climate change. It is rewarding to see the strides made thus far but it is also important to keep in mind the immense undertaking that is needed moving forward to meet the 2020 and 2050 GHG emission reduction goals. CEEPC will continue to work toward these goals to help protect the health of our citizens and the vitality of our economy.

Around the Nation

The National Capital Region is a national leader in tackling climate change and promoting clean energy solutions. In order to show how the region, COG conducted a regional comparison of progress on three national programs - LEED, ENERGY STAR, and EPA's Green Power Program - included in CEEPC's Regional Climate and Energy Action Plan.

Regional councils are multi-service entities that function as a planning organization, technical assistance provider, and "visionary" to its member local governments (Source: National Association of Regional Councils). COG is the regional council for the National Capital Region. This comparison includes leading regional councils, like COG, from across the country. Regions are defined by how each region's council defines their region, with the exception of Los Angeles County, which is a sub-region to the Southern California Association of Governments. The National Capital Region's 2010 Census population is approximately 4.9 million, in the mid-size range of regions compared.

2010 Census Population

Region	Population
Oregon Metro (Portland)	1,641,036
Denver Region	2,798,757
Chicago Metro	3,088,156
San Diego Region	3,095,313
Boston Region	3,128,335
Puget Sound (Seattle)	3,690,942
Atlanta Region	4,107,750
South Florida (Miami)	4,317,591
SE Michigan (Detroit)	4,704,809
National Capital Region	4,900,928
Delaware Valley (Phila.)	5,626,186
Houston-Galveston Area	6,087,133
North Central TX (Dallas)	6,539,950
San Francisco Bay Area	7,150,739
Los Angeles County	9,818,605

How COG Stacks Up
Key Figures

1st
- Total Number of LEED Certified Projects
- Number of Certified LEED for Neighborhood Development Projects
- Square footage of ENERGY STAR Rated Floor Space
- Number of EPA Green Power Partners

2nd
- Number of Certified LEED Homes
- Green Power (kWh) from EPA Green Power Partners
- Number of Green Power Communiities

3rd
- Number of ENERGY STAR Rated Buildings

4th
- Number of LEED Platinum Certified Projects (tied for 4th place with Delaware Valley - Philadelphia)

Twinbrook Station is the National Capital Region's first Gold certified LEED for Neighborhood Development
(Photo Credit: The JBG Companies)

LEED Buildings

The U.S. Green Building Council's green building program, LEED - Leadership in Energy and Environmental Design, is a third-party certification program that verifies projects are built to the high performance standards set by the program. There are four levels of certification. Certified is the base level, followed by Silver, Gold, and Platinum at the highest level. Of the regions surveyed, the National Capital Region has the highest number of LEED buildings certified between 2001 and 2013.
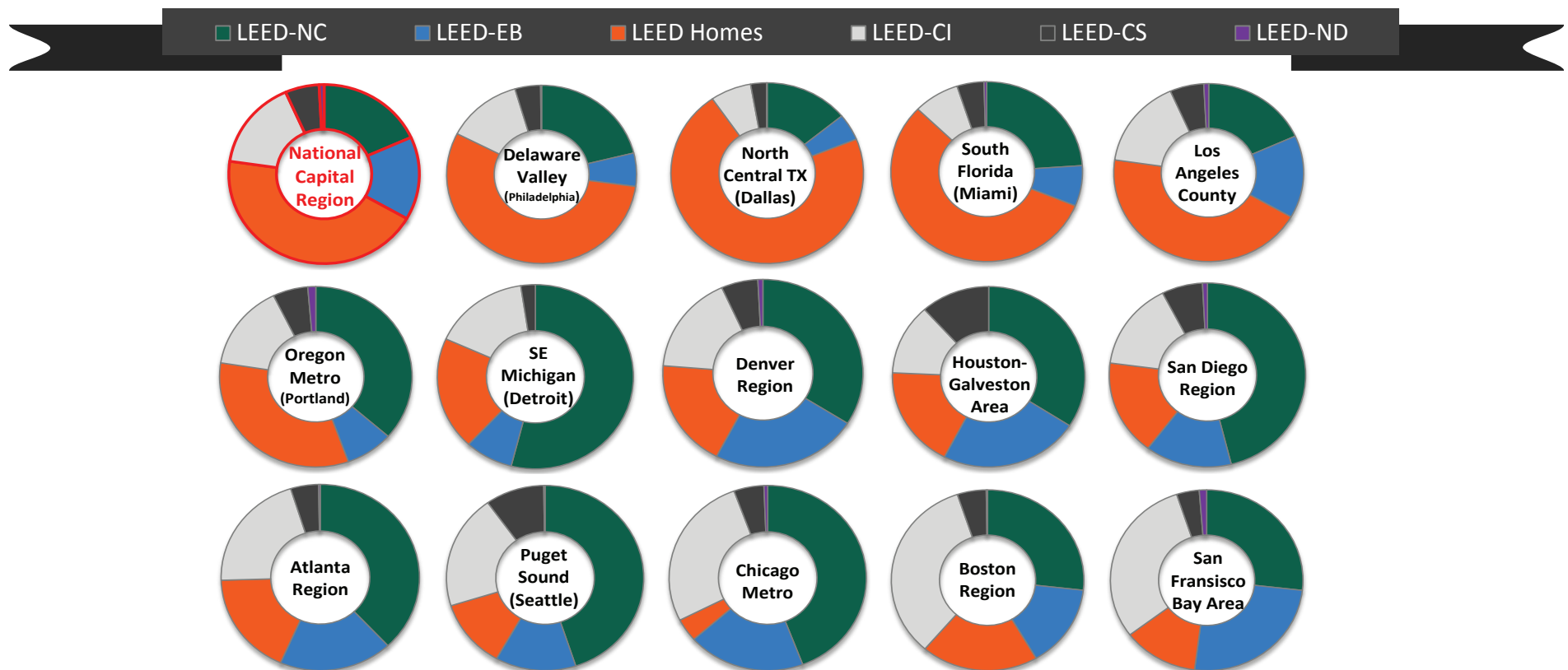

Regional Comparison of LEED Certified Buildings
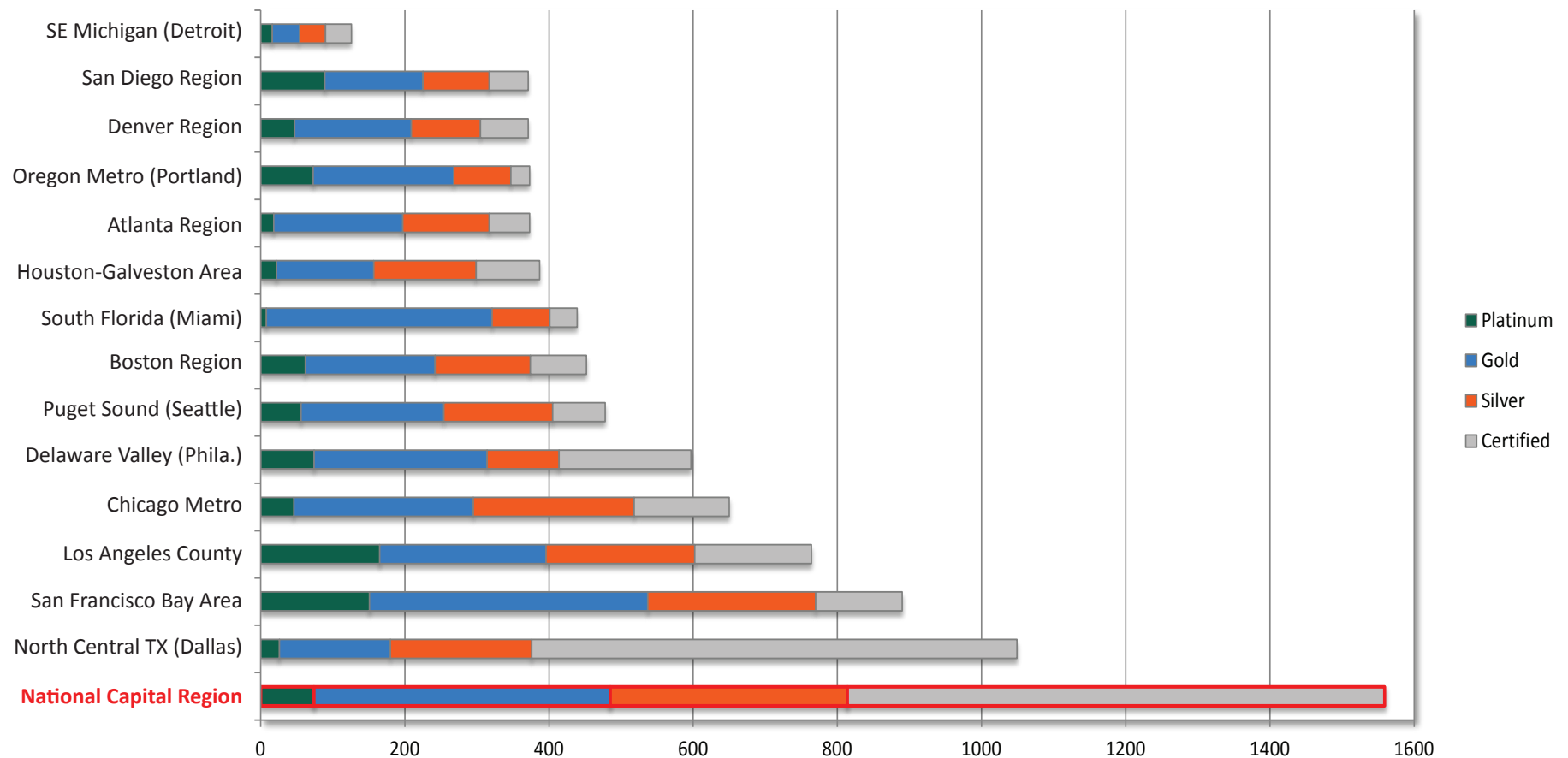
LEED rating systems address multiple project types: New Construction (NC), Existing Buildings (EB), Homes, Commercial Interiors (CI), Core and Shell (CS), and Neighborhood Development (ND). The percent of projects by rating system for each region is represented in the graphic below. In most regions, LEED for Homes (orange) or New Construction (green) is the most prevalent rating system.

Regions with a higher percentage of LEED Homes typically have at least a few certified neighborhood developments. The National Capital Region has several neighborhood developments including Chancellors Row and Capital Quarter in the District of Columbia; Old Town Commons and James Bland in Alexandria; and Mosaic Townhomes in Fairfax. The Delaware Valley (Philadelphia) region has several neigbhorhood developments completed by the Philadelphia Housing Authority and several individual projects by a real estate firm redeveloping abandoned properties in West Philadelphia.

In some regions, LEED for Homes is not as prevalent. In the Atlanta and Seattle regions there is already an established green home certification program. Both programs were established in 1999 in conjunction with the local builder associations and have hundreds of builders qualified to build to their standard. Atlanta-based EarthCraft has certified over 25,000 homes and Seattle-based Built Green has certified over 15,000 homes.

Legend: ■ LEED-NC ■ LEED-EB ■ LEED Homes ■ LEED-CI ☐ LEED-CS ■ LEED-ND

Regions shown: National Capital Region, Delaware Valley (Philadelphia), North Central TX (Dallas), South Florida (Miami), Los Angeles County, Oregon Metro (Portland), SE Michigan (Detroit), Denver Region, Houston-Galveston Area, San Diego Region, Atlanta Region, Puget Sound (Seattle), Chicago Metro, Boston Region, San Fransisco Bay Area

Source: USGBC Public LEED Project Directory
Note: LEED for Homes were not yet incorporated into the LEED Project Database in 2012 and has significantly increased the total of LEED Certified Buildings reported here compared to the 2012 Climate and Energy Progress Report.
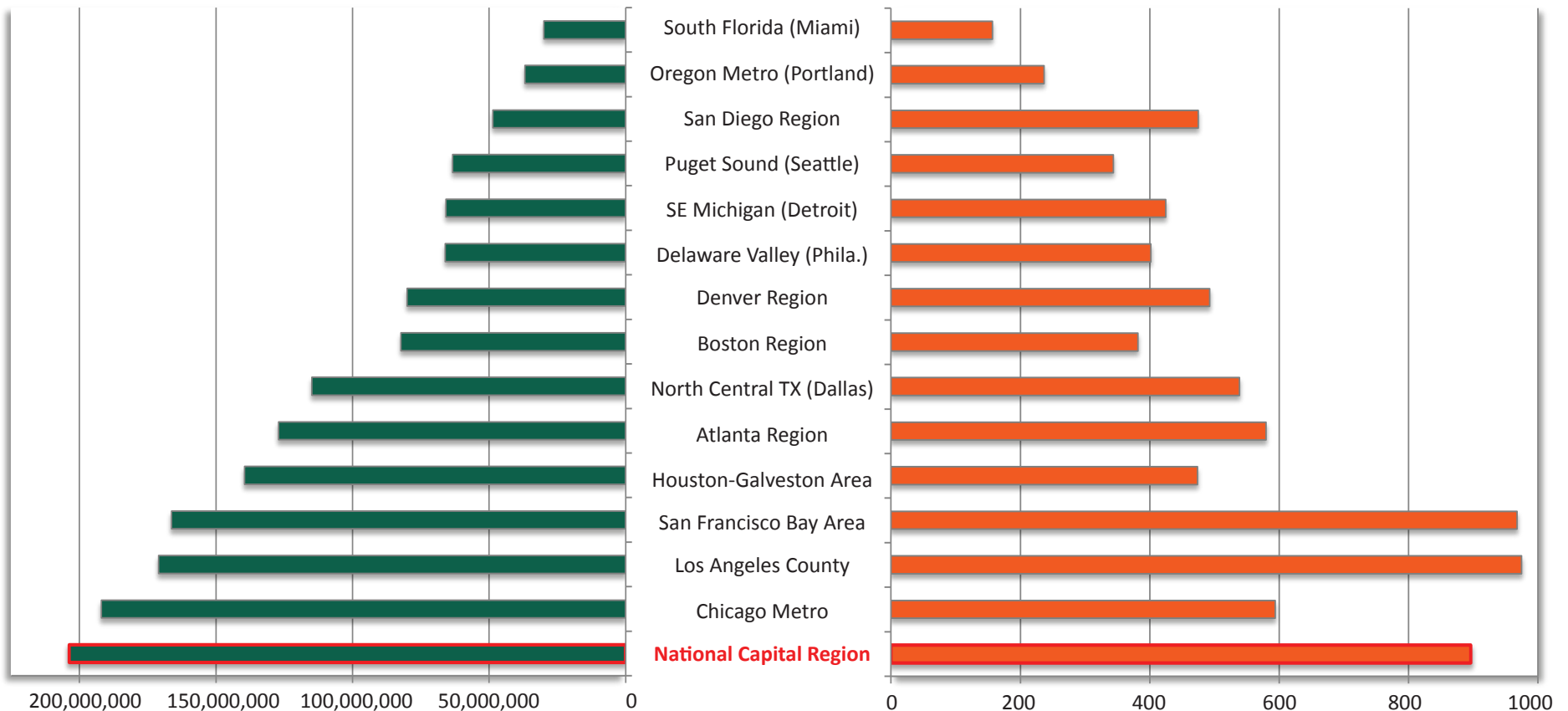
ENERGY STAR Buildings

ENERGY STAR rated buildings are among the most energy efficienct, compared to similar facilities across the nation. The US Environmental Protection Agency's (EPA) ENERGY STAR is a performance-based program that rates buildings annually. The chart below shows the number of buildings and total square footage in each region that have earned the ENERGY STAR rating for at least one year between 2000 through 2013.

Regional Comparison of ENERGY STAR Rated Buildings

Square Feet of Total ENERGY STAR Rated Space (left chart) and **Number of ENERGY STAR Rated Buildings** (right chart)

Regions (top to bottom): South Florida (Miami), Oregon Metro (Portland), San Diego Region, Puget Sound (Seattle), SE Michigan (Detroit), Delaware Valley (Phila.), Denver Region, Boston Region, North Central TX (Dallas), Atlanta Region, Houston-Galveston Area, San Francisco Bay Area, Los Angeles County, Chicago Metro, National Capital Region

Across the regions examined, there are three prevalent types of ENERGY STAR building owners, including public school systems, companies with "big-box" locations, and real estate/property management firms. These types of owners are large contributors to the total number of ENERGY STAR rated buildings and square footage. Retail companies located in almost every region include Target, Staples, and Kohls. Grocery stores, such as Food Lion and Kroger, contribute to the ENERGY STAR rated buildings and square footage in several regions. Tishman Speyer and Transwestern are examples of real estate/property management firms that have ENERGY STAR buildings across many of the regions.

With more than 200 million square feet of ENERGY STAR rated floor space, the National Capital Region has more square footage than any of the other regions examined and is third for number of ENERGY STAR rated buildings. Federal agencies are large contributors to the total ENERGY STAR square footage in the region. Leading federal agencies include the Departments of State, Labor, Energy, and Health and Human Services. Loudoun County and Fairfax County public school systems are also both large contributors to ENERGY STAR rated buildings and square footage in the region.

Target, Staples, and Kohls have ENERGY STAR certified stores in almost every region across the country.

EPA Green Power Program

The US EPA Green Power Partnership is a voluntary program with over 1,300 private and public sector partners participating to reduce their impact on the environment through the use of green power. Partners commit to using green power for 3% to 20% of the total annual electricity use (tiered usage levels correspond to an organization's electricity use). Commitments can be made organization-wide or at the facility level (or for a logical aggregation of facilities). Green power can be purchased or generated on-site.

With more than 100 Green Power Partners, the National Capital Region has the most participants of the regions compared, and is second behind the San Francisco Bay Area for total kilowatt hours of green power. The National Capital Region's top partners include several Federal agencies and the District of Columbia government. The Bay Area uses more green power thanks to partners such as Intel, Google, Apple and Cisco. The chart below summarizes regional information for EPA Green Power Partners.

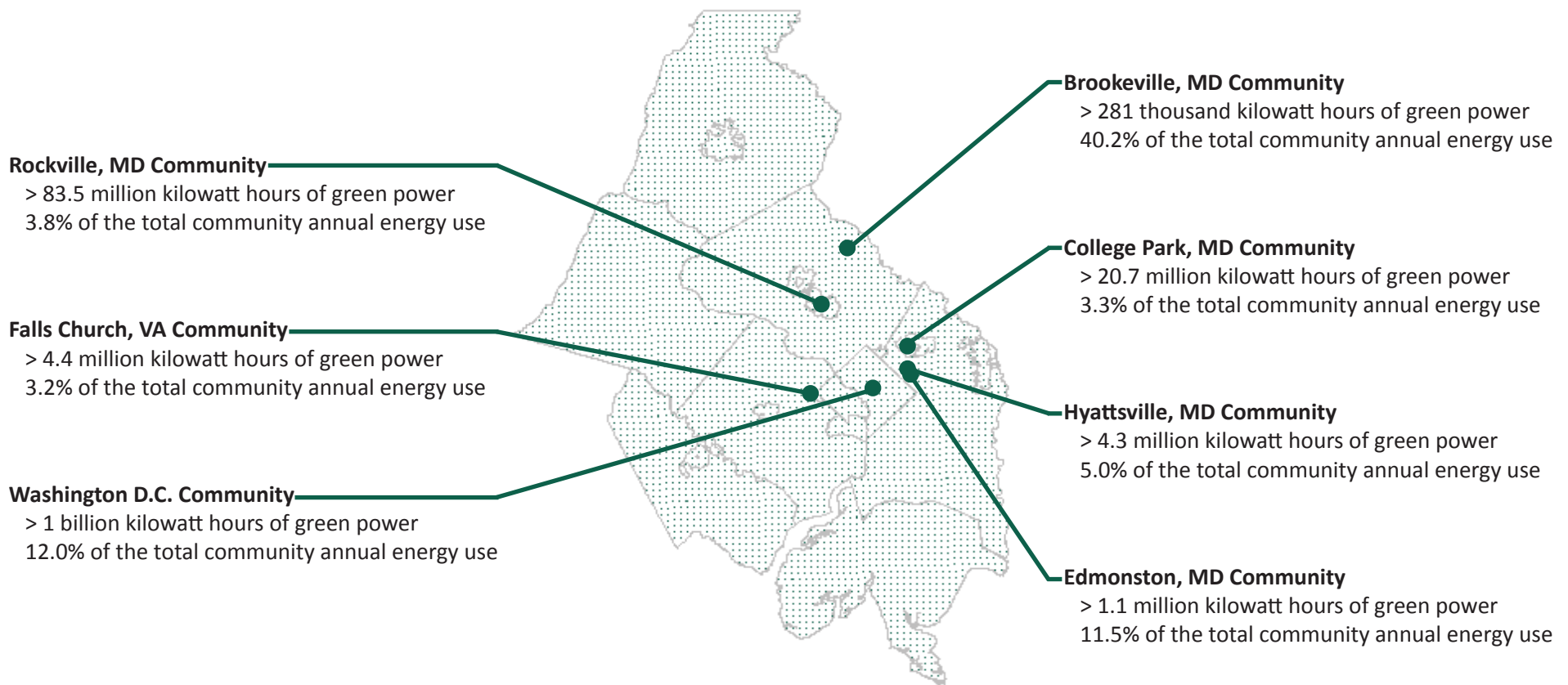| Region	Number of Green Power Partners	Green Power (kWh)	Top Green Power Partners
South Florida (Miami)	3	17,490,486	Intercontinental Hotel
Southern Michigan (Detroit)	5	18,187,280	General Dynamics Land Systems Central Office
San Diego Region	6	50,342,606	City of San Diego
Atlanta Region	8	121,267,914	Coca-Cola
Houston-Galveston Area	10	653,099,719	City of Houston
Los Angeles County	15	74,328,741	Los Angeles World Airports
Puget Sound (Seattle)	19	2,090,093,464	Microsoft
Denver Region	25	228,268,191	White Waves Food Company
North Central Texas (Dallas)	30	652,943,953	City of Dallas, Dallas-Fort Worth Airport
Oregon Metro (Portland)	34	191,016,670	Port of Portland, City of Portland
Delaware Valley (Philadelphia)	38	862,964,426	TD Bank, University of Pennsylvania
Chicago Metro	42	1,186,652,530	Metro Pier and Exposition Auth, Chicago Public Schools
Boston Region	44	1,406,862,293	Staples, State Street Corporation
San Francisco Bay Area	80	5,491,057,765	Intel, Google, Apple, Cisco
National Capital Region	**103**	**3,389,656,517**	**Federal Agencies, District of Columbia**

Source: EPA Green Power Program
Note: Green Power (kWh) includes organizations that are headquartered in each region but whose green power use may cover operations outside of the region.

A Green Power Community is a town, city, or county where local governments, residents, and businesses collectively meet the minimum green power requirements. In order to become a Green Power Community, the local government must become a Green Power Partner, work with the power provider to determine community-wide energy use, and initiate a community-wide campaign to encourage residential and business participation.

There are more than 50 Green Power Communities nationwide. The San Francisco Bay Area and the National Capital Region contains a concentration of Green Power Communities as does the Portland and Chicago metropolitan areas. Most regions do not have Green Power Communities. The chart to the right summarizes the number of Green Power Communities by region and the graphic below highlights all of the Green Power Communities in the National Capital Region.

Region	Number of Green Power Communities
Boston Region	1
Puget Sound (Seattle)	1
Delaware Valley (Philadelphia)	2
Chicago Metro	4
Oregon Metro (Portland)	5
National Capital Region	7
San Francisco Bay Area	13

Rockville, MD Community
   > 83.5 million kilowatt hours of green power
   3.8% of the total community annual energy use

Falls Church, VA Community
   > 4.4 million kilowatt hours of green power
   3.2% of the total community annual energy use

Washington D.C. Community
   > 1 billion kilowatt hours of green power
   12.0% of the total community annual energy use

Brookeville, MD Community
   > 281 thousand kilowatt hours of green power
   40.2% of the total community annual energy use

College Park, MD Community
   > 20.7 million kilowatt hours of green power
   3.3% of the total community annual energy use

Hyattsville, MD Community
   > 4.3 million kilowatt hours of green power
   5.0% of the total community annual energy use

Edmonston, MD Community
   > 1.1 million kilowatt hours of green power
   11.5% of the total community annual energy use

Around the Region

The national comparison on the last several pages showed how the National Capital Region compares to other regions across the country on a few specific programs that address climate change and energy. The following several pages will look more closely at what is happening within the National Capital Region to address climate change and energy issues. The information provided draws mainly the self-reported COG Annual Climate and Energy Survey results. The questions asked in the survey are designed to monitor progress toward implementation of the 2013-2016 Regional Climate and Energy Action Plan (Action Plan).

Climate Action Plan
The Action Plan identifies short-term goals and actions to help the region meet its mid- and long-term regional greenhouse gas (GHG) emission reduction goals. The mid- and long-term regional GHG emissions reduction goals, first established in the 2008 National Capital Region Climate Change Report, includes being 20% below the 2005 levels by 2020 and 80% below 2005 levels by 2050. The Action Plan identifies goals and actions in the not only for greenhouse gas reduction but also built environment and infrastructure, renewable energy, transportation and land use, sustainability and resiliency, and outreach. The Action Plan is geared toward actions local jurisdictions can take, to improve internal operations and encourage community-wide action.

Climate, Energy and Environment Policy Committee
Created in 2009, COG's Climate, Energy and Environment Policy Committee (CEEPC) is the body that established the Action Plan and provides ongoing leadership to area governments as they work together to meet regional GHG reduction goals. CEEPC includes representatives from COG's member governments, state environmental and transportation agencies, state legislatures, the Air and Climate Public Advisory Committee (ACPAC), federal and regional agencies, electric and gas utilities, environmental organizations, business organizations and members of the academic community. Several subcommittees, such as the Built Environment and Energy Advisory Committee (BEEAC) and ACPAC, provide essential input and support to CEEPC.

Local Government Climate and Energy Survey Results
The Annual Climate and Energy Survey was sent to COG's 22 member local jurisdictions, of which 17 responded. Where applicable, results reported in 2013 were incorporated into this report for the local jurisdictions that did not respond in 2014. For a handful of actions, the chart on the following page reflects progress made by COG member jurisdictions compared to the goal established in the Action Plan (see the Implemented + In Progress row versus the CEEPC Action Plan Goal row at the bottom of the chart). Results show the region is well on its way toward meeting the goals for most of these actions; however, CEEPC may want to consider additional support for the EPA Green Power Program, complete streets policies, and resiliency strategies.

Local Government	Energy Improvement Plan - Govt Operations	Walk-Through Energy Audits	EPA Green Power Partner	EPA Green Power Community	Complete Streets Policy	Assess Community Vulnerability	Develop Community Resiliency Strategies	Promote EERE Incentives	Employee Sustainability Education
District of Columbia	✓	✓✓	✓✓	✓✓	✓✓	✓	✓	✓	✓✓
Suburban Maryland									
Charles County	✓✓	–	NR	NR	✓	–	–	✓	✓
Frederick County	NR	NR	NR	NR	–	NR	NR	✓	NR
City of Frederick	–	–	–	–	✓	–	–	✓	–
Montgomery County	✓	✓✓	✓✓	NR	NR	✓	✓	✓✓	✓
City of Gaithersburg	–	✓✓	✓✓	–	N/A	–	–	✓✓	–
City of Rockville	✓✓	✓✓	✓✓	✓✓	✓✓	–	–	✓✓	✓
City of Takoma Park	✓	✓✓	–	–	–	✓	✓	✓	–
Prince George's County	✓✓	✓✓	N/A	N/A	✓✓	✓	–	✓✓	✓✓
City of Bowie	✓✓	–	–	–	–	✓✓	✓	✓	✓
City of College Park	✓	✓✓	✓✓	✓✓	–	–	–	–	✓
City of Greenbelt	✓	✓	✓✓	✓	N/A	N/A	N/A	✓	–
Town of Bladensburg	NR	NR	NR	NR	NR	–	–	N/A	–
Northern Virginia									
Arlington County	✓	✓✓	✓✓	–	✓✓	✓	✓	✓✓	✓✓
Fairfax County	✓✓	✓✓	✓✓ (not current)	–	✓✓	✓✓	✓	✓✓	✓✓
Loudoun County	–	✓	–	–	–	–	–	–	✓✓
Prince William County	✓	✓	✓	–	N/A	–	–	–	✓
City of Alexandria	✓✓	✓✓	✓✓	–	✓✓	✓	✓	✓✓	✓
City of Fairfax	✓	✓✓	–	–	–	✓	–	✓	✓
City of Falls Church	NR	NR	✓✓	✓✓	✓	NR	NR	–	NR
City of Manassas	✓	✓✓	–	–	✓✓	–	–	✓	–
City of Manassas Park	–	✓	NR	NR	–	–	–	–	–
% Implemented	27%	55%	45%	18%	32%	9%	0%	32%	23%
% In Progress	41%	18%	5%	5%	14%	32%	32%	41%	36%
Implemented + In Progress	68%	73%	50%	23%	45%	41%	32%	73%	59%
CEEPC Action Plan Goal	75%	75%	75%	25%	75%	40%	40%	75%	50%

✓✓ = Implemented   ✓ - In Progress   – = Not Started   N/A = Not Applicable   NR = No Response

School Systems

COG also surveyed the region's public school systems on climate and energy initiatives. Six of the thirteen school systems responded to the survey. Results are summarized in the below chart. Many schools systems have shown leadership implementing energy efficiency programs and renewable energy installations. None of the survey respondents have initiated vulnerability assessments or resiliency strategies; however, it may be most appropriate for these initatives to be implemented in conjunction with the local government. To further describe the work that goes into school systems' climate and energy initiatives, some success stories are highlighted on the following page.

School Systems Climate and Energy Initiatives Summary Chart

Legend: ■ Number In Progress ■ Number Implemented
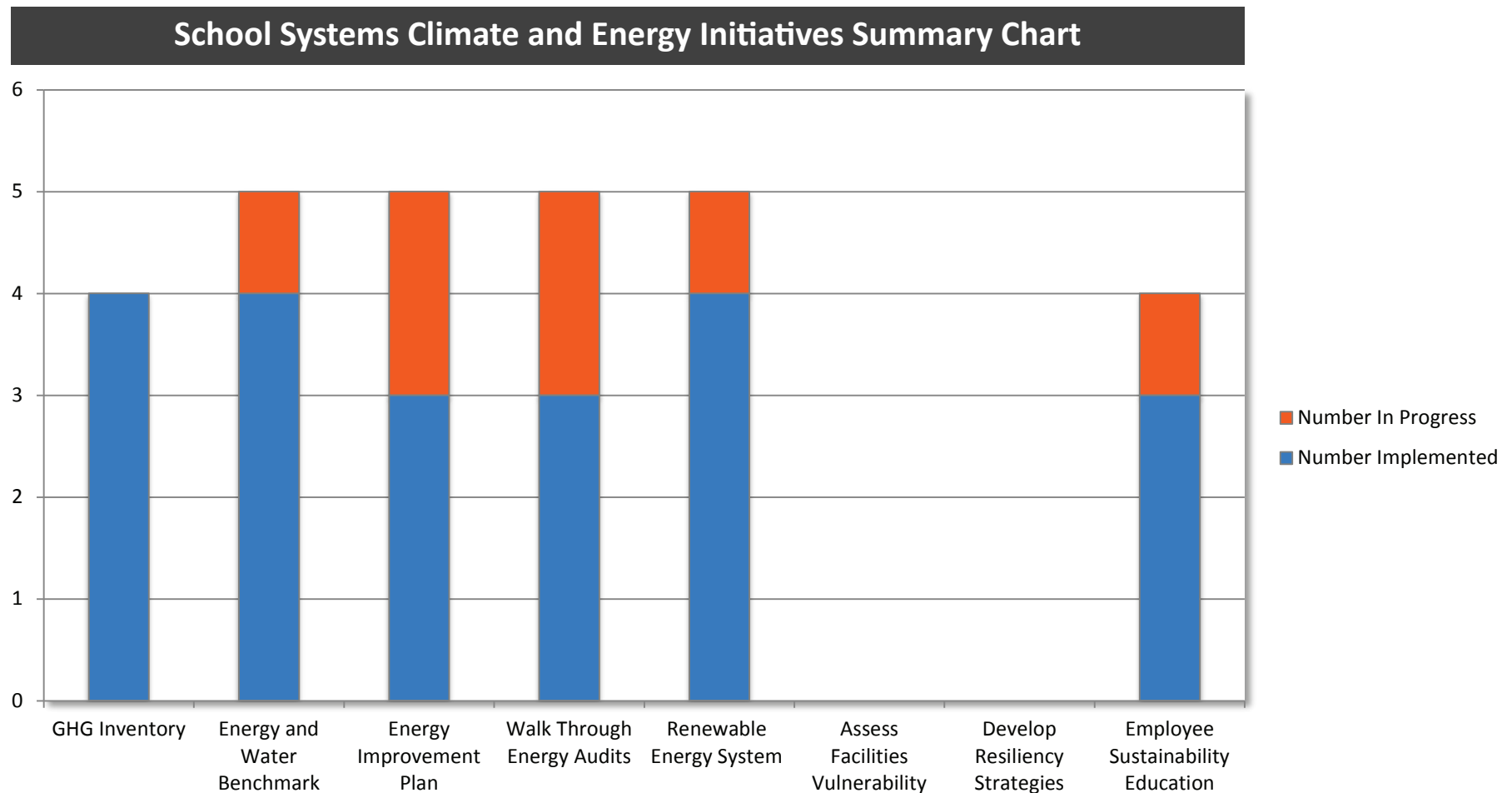
Lunsford Middle School is a high performance building that was design to and has earned the ENERGY STAR rating.
Photo Credit: LCPS

Loudoun County Public Schools

Over 50 LCPS schools that have earned the ENERGY STAR rating for at least one year. This represents more than 60% of their schools and over 5.3 million square feet of floor space. LCPS benchmarks all school energy use with ENERGY STAR Portfolio Manager and conducts ENERGY STAR mechanical systems audits. Since 2010, all new construction projects have been evaluated by the ENERGY STAR Target Finder, a tool used to determine a building is designed to meet the ENERGY STAR standard. Nine schools have earned the "Designed to earn ENERGY STAR" designation. Lunsford Middle School as the first to have earned the this designation and the ENERGY STAR rating for 2013. (Source: LCPS)

Fairfax County Public Schools

FCPS has an aggressive energy management program that benchmarks over 190 FCPS facilities in ENERGY STAR Portfolio Manager to guide efforts to minimize use and cost of energy. Forty-seven schools, with more than 5.5 million square feet of floor space, have earned the ENERGY STAR rating. FCPS Get2Green Program has at least 130 schools engaged in student environmental action. Schools set up student driven teams to perform school-wide audits and develop and implement student action plans in areas such as energy conservation, waste reduction, development of wildlife habitat for stormwater management and increasing plant and animal biodiversity, sustainable food, etc. Five schools have reached the National Wildlife Federation's Eco School Green Flag status. Only about 30 schools in the nation have earned the rating. (Source: FCPS)

Mason Crest Elementary School uses geothermal and has the lowest energy use per sqaure foot for FCPS.
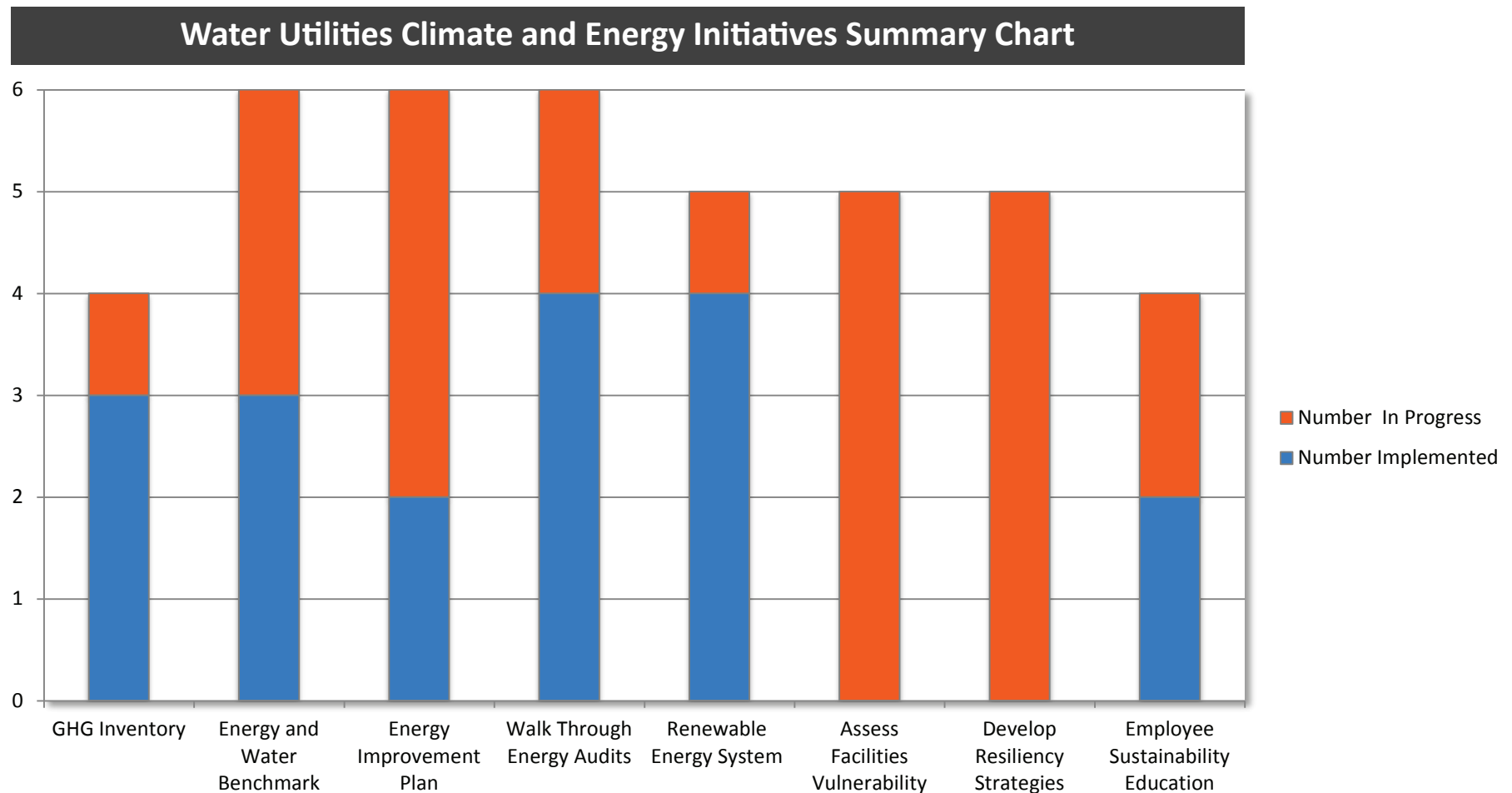Photo Credit: FCPS

Francis Scott Key Middle School is LEED Certified Gold and the recipient of the 2012 US Dept of Education Green Ribbon School Award
Photo Credit:MCPS

Montgomery County Public Schools

In 2013, MCPS developed a greenhouse gas emissions inventory as part of its Sustainability Management Plan. MCPS has reduced greenhouse gas emissions by over 70,000 MTCO2$_e$ (million tons of CO$_2$ equivalent), a 28% reduction in the MCPS carbon footprint since 2003. Three initiatives that have contributed to that success include (1) the School Energy and Recycling Team (SERT) program which encourages and supports students and staff as they take active responsibility for reducing energy and solid waste; (2) the installation of solar at eight schools that provide 20% to 40% of the power needed during peak production hours; and (3) the construction of 14 LEED Gold Certified schools, of which the newer schools achieve around 30% improvement in energy efficiency. (Source: MCPS)

Water Utilities

Drinking water and wastewater entities typically are the largest energy users of municipal governments (source: EPA); therefore, their initiatives to reduce energy use can have a major impact on reducing GHG emissions. In addition to local jurisdiction efforts highlighted on the previous page, climate and energy initiatives for six of the eight major water utilities in the region surveyed are summarized in the chart below. Many of the major water utilities in the region have conducted greenhouse gas (GHG) inventories, conducting energy audits, have renewable energy systems, are assessing and addressing their vulnerabilities and provide sustainability education to their employees. Some success stories are highlighted on the following page.

Water Utilities Climate and Energy Initiatives Summary Chart

Legend:
- Number In Progress (orange)
- Number Implemented (blue)

AlexRenew biosolids processing
Photo Credit: AlexRenew

Alexandria Renew Enterprises

AlexRenew developed a baseline GHG inventory in 2008 with updates for 2010-2013. Baseline energy usage was developed in conjunction with the Energy Minimization Plan. Energy use is continuously monitored with the goal of net energy neutrality. The biosolids program alone generates almost 130 million cubic feet of renewable energy, enough gas to heat 880 homes for a year.

AlexRenew has identified onsite vulnerabilities. Capital planning and infrastructure renewal incorporates climate vulnerability in design and planning. An overall resiliency plan is in development. (Source: AlexRenew)

District of Columbia Water and Sewer Authority

DC Water is upgrading its biosolids management program at Blue Plains Advanced Wastewater Treatment Plant to generate 13 MW of electricity from methane gas, a by product of the wastewater treatment process, reducing carbon emissions by approximately 50,000 metric tons annually. The facility will also reduce biosolids trucking by 60%.

DC Water has undertaken vulnerability assessments at several facilities, including Blue Plains, and plans to assess the remainder of facilities in their portfolio. DC Water is in the process of adopting a formal Climate Adaptation Plan, focusing on their facilities and operations. (Source: DC Water)

DC Water Biosolids Management Program (7 of 14 centrifuges)
Photo Credit: Parsons

Modules form long rows of solar at WSSC wastewater treatment plant.

Washington Suburban Sanitary Commission

WSSC developed GHG inventories for 2005-2011 and a GHG action plan to reduce future emissions by 10% every 5 years through 2030. Key accomplishments toward this goal include (1) energy efficiency upgrades to the a plant that will save 4.5 million kWh and $562,000 per year; (2) a 10-year wind power purchase agreement for 30% of its electrical power-equal to taking 100,000 cars off the road; and (3) solar power systems installed in 2013 at two of plants that will generate 6.6 million kWh per year (~17% of usage), saving $3.5 million over the life of the agreement. These solar systems are expected to help reduce carbon dioxide emissions equal to avoiding the use of approximately 358,680 gallons of gasoline each year. (Source: WSSC)

Energy Utilities

Regional Energy Consumption

In 2009, COG began a data sharing initiative with the region's electric and natural gas utilities to assist in tracking progress toward climate change goals. COG requests data on a number of energy metrics including consumption, customers, and grid-connected renewable energy. This data has proved extremely useful to COG member local governments in preparing emissions inventories and measuring improvement on specific goals, such as energy consumption per capita or renewable energy deployment.

The data (not weather normalized) shows total regional electricity consumption in 2013 at **60.5 million MW**, a 1% increase over 2012, and a 2% increase over baseline year 2005. Natural gas consumption was **1.45 billion therms** in 2013, a 6% increase over 2012, but a 9% drop from 2005. The chart on lower left shows the general consumption trend over time for electricity and natural gas. Energy use per capita has increased slightly over the past two years, bringing it back to 2005 levels. The per capita chart on the lower right reflects combined use of electricity and natural gas; therms were converted to MWh-equivalents.
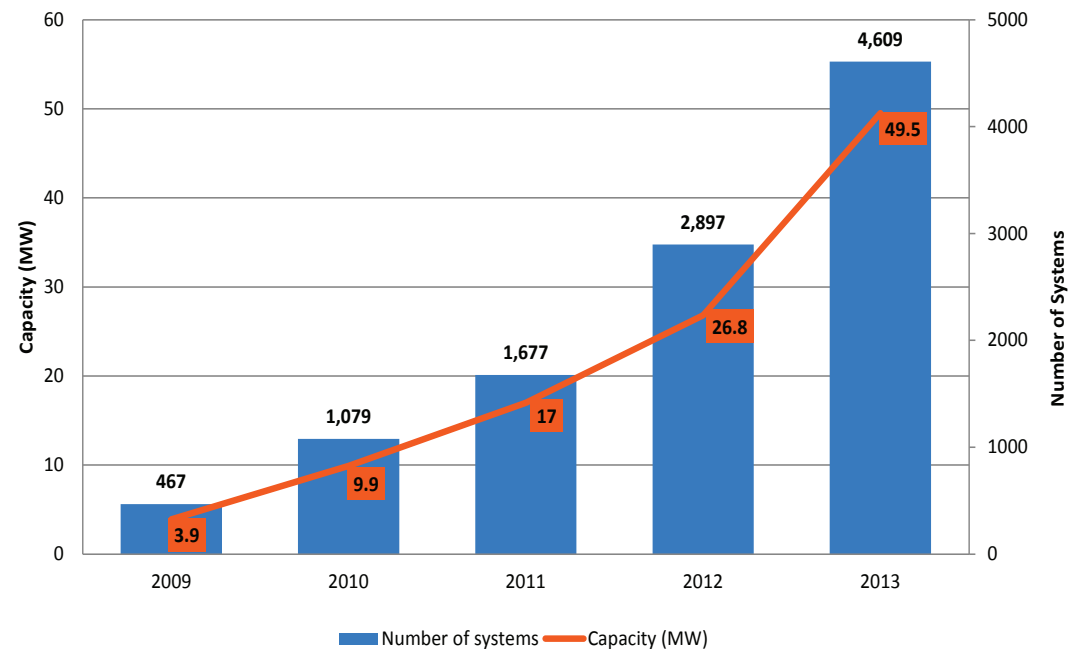
National Capital Region Energy Use Trends
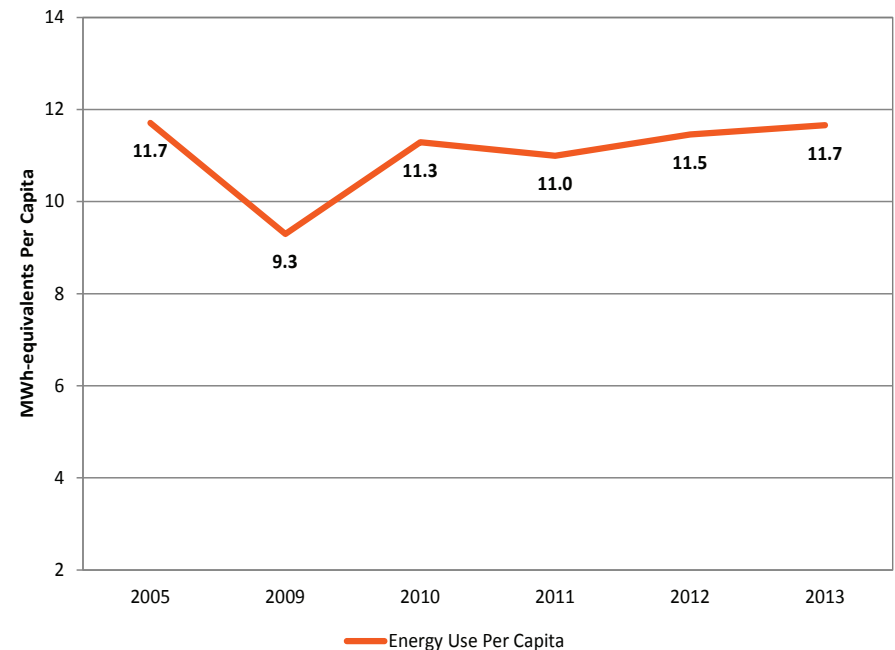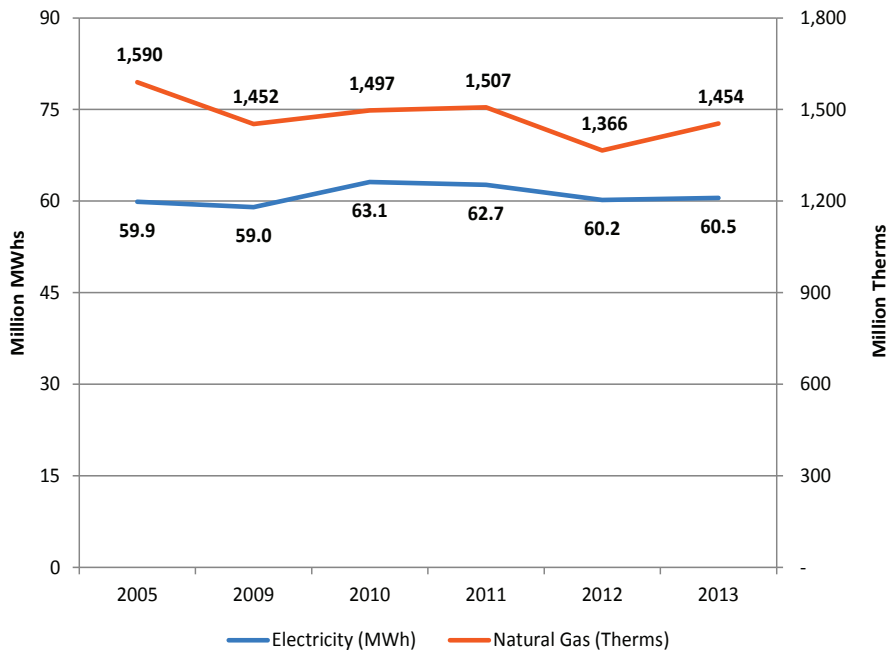
Renewable Energy Trends

Since 2009, the region has experienced tremendous growth in net-metered renewable energy systems. The number of systems has grown 10-fold, from 460 in 2005 to **over 4,600**. Total generating capacity is growing even more rapidly – from less than 4MW in 2005, to **nearly 50 MW**. In just the last year, the number of renewable energy systems increased 60%, and generating capacity increased 85%. The chart on the upper right shows the upward trend in the number and generating capacity of renewable energy systems in the region.
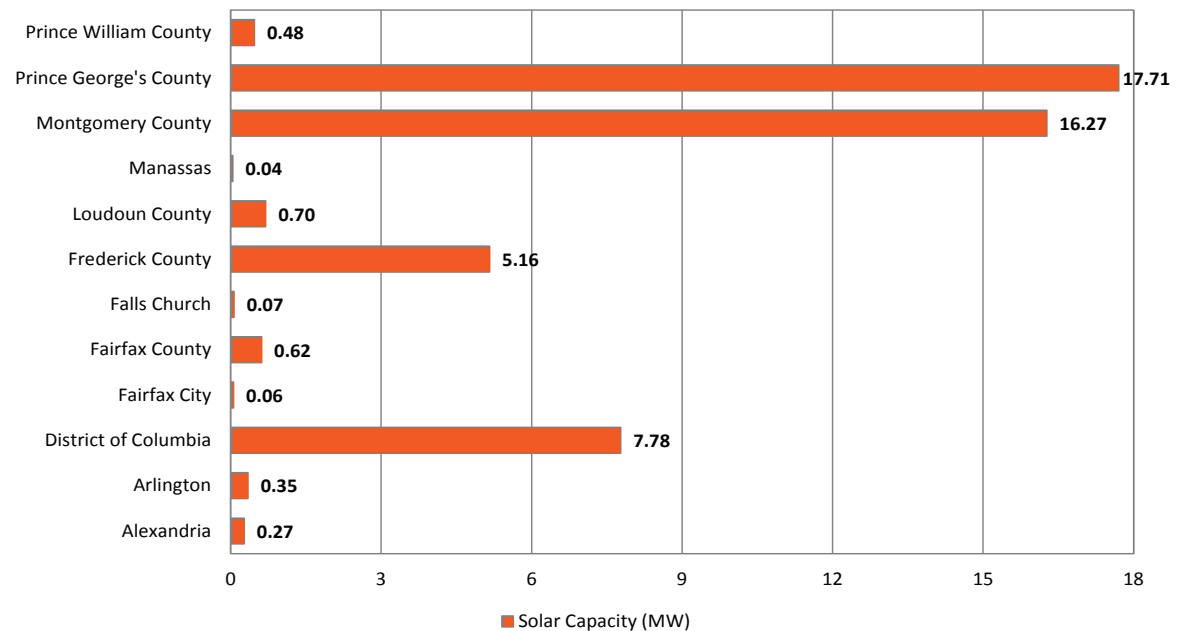
Local Solar Deployment

The vast majority of the region's renewable energy growth has been concentrated in District of Columbia and suburban Maryland. Mandatory renewable energy standards (RES) and high solar renewable energy certificate (SREC) prices, as well as policies allowing larger systems and innovative financing tools have enabled the solar markets in Maryland and DC to flourish. The chart on the lower right shows installed solar photovoltaic capacity by jurisdiction for 2013.

Net-Metered Renewables in the National Capital Region

Year	Number of systems	Capacity (MW)
2009	467	3.9
2010	1,079	9.9
2011	1,677	17
2012	2,897	26.8
2013	4,609	49.5

Legend: Number of systems — Capacity (MW)

Local Solar Deployment, 2013

Jurisdiction	Solar Capacity (MW)
Prince William County	0.48
Prince George's County	17.71
Montgomery County	16.27
Manassas	0.04
Loudoun County	0.70
Frederick County	5.16
Falls Church	0.07
Fairfax County	0.62
Fairfax City	0.06
District of Columbia	7.78
Arlington	0.35
Alexandria	0.27

Penelope Gross, Member
Climate, Energy and Environment Policy Committee

As a member of the Climate, Energy and Environment Policy Committee and 2013 President of the National Association of Regional Councils (NARC) Board of Directors, I'm pleased that the National Capital Region's policies and progress set a high standard. The Regional Climate and Energy Action Plan and the work of the Climate, Energy and Environment Policy Committee can serve as a model for regions across the nation.

In order to achieve reduced emissions and energy consumption and economically increase clean energy options, we need a collaborative effort and action at all levels of government, by all types of utilities, non-profits, businesses, higher education institutions, and other community partners. I look forward to continuing to work with NARC, COG and CEEPC to bring these partners together to identify solutions to the environmental challenges that regions face.

Members List
Climate, Energy and Environment Policy Committee

District of Columbia
Mary Cheh, District of Columbia (Council)
Keith Anderson, District of Columbia (Executive)

Maryland
James Flynn, Town of Bladensburg
Henri Gardner, City of Bowie
Karen Wiggen, Charles County
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Blaine R. Young and Shannon Moore, Frederick County
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David Meyer, City of Fairfax
Penelope Gross and Kambiz Agazi, Fairfax County
Daniel Sze, City of Falls Church
Ralph Buona, Loudoun County
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Maureen Caddigan and Tom Smith, Prince William County

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Dr. Teresa Lawrence, District Office of Energy
Terry Bellamy, Faisal Hameed, and Austina Casey, District Department of Transportation
Robert Summers, Luke Wisniewski, and Brian Hug, Maryland Department of Environment
Abigal Hopper and Devon Dodson, Maryland Energy Administration
James T. Smith, Howard Simons, and Lyn Erikson, Maryland Department of Transportation

State, Environment, Energy and Transportation Agencies *(continued)*
Conrad Spangler, Virginia Department of Mines, Minerals and Energy
Aubrey Layne and Garrett Moore, Virginia Transportation

State Legislatures
Alfred C. Carr, Jr., Maryland House of Delegates
James Rosapepe, Maryland Senate
Chap Peterson, Senate of Virginia

Public Advisory Committee
Andrew Kambour, Air and Climate Public Advisory Committee

Federal and Regional Agencies
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Bucky Green, EPA Sustainable Facilities Branch
Julia Hudson and Chris Randolph, General Services Administration, National Capital Region
Amy Tarce, National Capital Planning Commission
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Electric and Gas Utilities
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Environmental/Non-Profits
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Claude Willis, Greater Washington Clean Cities Coalition
Nicole Steele, Grid Alternatives
John Andrioni, Institute for Market Transformation
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