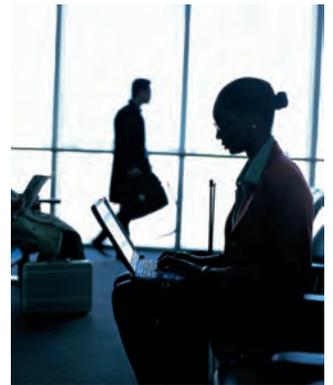


U.S. Environmental Protection Agency

Energy Management and Conservation Program

Fiscal Year 2012 Annual Report



U.S. ENVIRONMENTAL PROTECTION AGENCY

**ENERGY MANAGEMENT AND CONSERVATION
PROGRAM**

FISCAL YEAR 2012 ANNUAL REPORT

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FISCAL YEAR (FY) 2012 HIGHLIGHTS

In FY 2012, the U.S. Environmental Protection Agency (EPA) once again demonstrated leadership among federal agencies in reducing its environmental footprint and promoting sustainability. EPA continues to meet or exceed the federal sustainability goals required under the Energy Policy Act of 2005 (EPA Act 2005), Executive Order (EO) 13514, and the Energy Independence and Security Act of 2007 (EISA) for greenhouse gas (GHG) emission reductions, energy efficiency, water conservation, green buildings, solid waste diversion, and other environmental performance metrics.

In FY 2012, EPA focused on: reducing its Scope 1, 2, and 3 GHG emissions; implementing major energy efficiency projects; procuring green power; carrying out water conservation and stormwater management projects; improving and certifying its inventory of Federal Real Property Profile (FRPP) buildings as meeting the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (Guiding Principles)*; acquiring high performance sustainable buildings that exceed the environmental performance of the facilities being replaced; and raising its non-hazardous solid waste diversion rate. EPA received a score of “green” in every category on its January 2012 and June 2012 U.S. Office of Management and Budget (OMB) Sustainability/Energy scorecards, demonstrating the ongoing success of the Agency’s comprehensive approach to sustainability.

In June 2012, in accordance with the requirements of EO 13514, EPA submitted a revised Strategic Sustainability Performance Plan (SSPP) to OMB and the Council on Environmental Quality (CEQ). EPA’s SSPP outlines the Agency’s strategies and plans to reduce GHG emissions, energy use, water consumption, solid waste, and other resource use, and to incorporate sustainable design and operations into all of its facilities.

GHG Emissions Down From FY 2008 Baseline

In FY 2012, EPA reported Scope 1 and 2 GHG emissions of 65,127 metric tons of carbon dioxide equivalent (MTCO₂e). These emissions were 54.1 percent lower than EPA’s revised FY 2008 emissions baseline,¹ which is surpassing the Agency’s Scope 1 and 2 GHG emissions reduction goal of 25 percent by FY 2020 from the FY 2008 baseline. EPA achieved these reductions through major energy efficiency projects at its facilities, improved fleet management practices, and extensive green power purchases. EPA anticipates making further progress in FY 2013 and beyond as a result of implementing additional energy conservation projects, consolidating or right-sizing laboratory infrastructure when opportunities arise, and continuing to purchase green power. Even without the environmental benefit of its green power purchases taken into account, EPA still would have reduced its Scope 1 and 2 GHG emissions 7.3 percent compared to the FY 2008 baseline.

EPA also reduced its Scope 3 GHG emissions in FY 2012. The Scope 3 GHG emissions from sources EPA is required to report totaled 48,138 MTCO₂e in FY 2012, which is a decrease of 32.3

¹ In FY 2012, EPA revised its FY 2008 Scope 1 and 2 GHG emissions baseline (see Appendix A) to reflect updates in its historical energy consumption and square footage data.

percent compared to the revised FY 2008 GHG emissions baseline.² A reduction in EPA's Scope 3 GHG emissions associated with business air travel, achieved through increased video conferencing and travel budget cuts, contributed the most to this decrease. Scope 3 GHG emissions from air travel dropped by 46.0 percent between the FY 2008 baseline and FY 2012. While Scope 3 GHG emissions for rental space is still an optional reporting category, because of its continuing office consolidation efforts and increasing use of telework, EPA expects to see reductions in this Scope 3 GHG category in the years to come.

Reported Energy Intensity Down 23.7 Percent From FY 2003 Baseline

EPA's FY 2012 reported energy intensity was 299,967 British thermal units (Btu) per gross square foot (GSF).^{3,4} EPA exceeded the energy intensity reduction required under EISA and EO 13423—21 percent by the end of FY 2012 compared to an FY 2003 baseline—by reducing its energy intensity 23.7 percent compared to its FY 2003 baseline. In FY 2012, EPA initiated, continued, or completed work on several major energy projects and mechanical system upgrades, which are outlined later in this report, and will continue to closely manage its energy use and make further progress in reducing its energy intensity in FY 2013.

EPA continued to be a leader among federal agencies by purchasing green power and renewable energy certificates (RECs) equal to 100 percent of its FY 2012 electricity use. In August 2011, EPA procured three separate blanket purchase agreements for a total of more than 265 million kilowatt-hours (kWh) of RECs that supported renewable energy generation from wind and biomass resources in Louisiana, Iowa, Missouri, and Nebraska. Combined with four other contracts for delivered green power and RECs, EPA received more than 266 million kWh of renewable energy in FY 2012, which covered the Agency's entire estimated FY 2012 annual electricity use.

In FY 2012, EPA completed energy assessments at the Andrew W. Breidenbach Environmental Research Center (AWBERC) in Cincinnati, Ohio, and the Main Building at its campus in Research Triangle Park (RTP), North Carolina, which collectively represent 22 percent of the total energy use of EPA's covered facilities (based on FY 2008 data, per EISA Section 432 guidance). With the completion of these two assessments, EPA successfully completed its first four-year reporting cycle required under EISA Section 432 by evaluating 100 percent of its covered facilities by June 2012.

EPA completed installation of advanced metering hardware at six laboratory facilities in 2012. Advanced metering hardware now captures 72.0 percent of Agencywide reportable energy consumption.

² In FY 2012, EPA revised its FY 2008 Scope 3 GHG emissions baseline (see Appendix A) to reflect a revised methodology from the U.S. General Services Administration (GSA) for calculating GHG emissions associated with employee commuting.

³ EPA's reported energy intensity accounts for the U.S. Department of Energy's (DOE's) source energy savings credits.

⁴ In FY 2012, EPA experienced meter malfunctions at its Main Building in RTP, North Carolina, and the Chapel Hill Laboratory in Chapel Hill, North Carolina. Although EPA has resolved the metering issues at both facilities, the Agency is still evaluating how to retroactively estimate FY 2012 energy usage for these facilities. As a result, EPA's reported FY 2012 energy intensity might change once EPA completes this investigation.

Water Intensity Down 22.5 Percent From FY 2007 Baseline

In FY 2012, EPA exceeded the EO 13514 requirement to reduce its water intensity by 10 percent compared to the FY 2007 baseline. EPA's water intensity in reporting laboratories was 27.6 gallons per GSF, which is 22.5 percent lower than its FY 2007 water intensity baseline.

Several individual EPA facilities achieved significant water reductions in FY 2012 by completing water conservation projects, which are outlined later in this report. EPA also conducted water assessments for three non-EISA-covered facilities in FY 2012.

EPA also continued to exceed the proposed requirements for reducing industrial, landscaping, and agricultural (ILA) water use set forth in EO 13514. EPA estimates that it used 7,007,631 gallons of nonpotable water for ILA applications in FY 2012, which is 94.8 percent lower than its interim FY 2010 baseline.

9.8 Percent of FRPP Inventory Meets *Guiding Principles*

Using EPA's projected FY 2015 FRPP inventory, 9.8 percent (by number of buildings) of EPA's FRPP buildings measuring greater than 5,000 square feet met the *Guiding Principles* in FY 2012. This progress exceeds the OMB goal of 9.0 percent and is two-thirds of the way to meeting the FY 2015 requirement of 15 percent. In FY 2012, EPA completed *Guiding Principles* certification for one laboratory building and is on the cusp of certifying another in FY 2013. With the certification and near certification of these two buildings, EPA completed piloting its own system to upgrade and certify its existing buildings as meeting the *Guiding Principles*.

Green Certifications Promote High Performance Sustainable Buildings

In addition to internally certifying that its facilities meet the *Guiding Principles*, EPA's inventory includes additional buildings (either owned or leased via GSA) that have received some form of green building certification. At the end of FY 2012, 18 percent of EPA's occupied space (either FRPP or non-FRPP) has received one or more green building certifications.

EPA occupies 10 buildings certified Gold or Silver under the U.S. Green Building Council's (USGBC's) LEED® for New Construction & Major Renovations rating system, as well as seven buildings certified Platinum, Gold, or Silver under the LEED for Existing Buildings: Operations & Maintenance (O&M) rating system.

In addition, three EPA Headquarters office buildings earned the ENERGY STAR® in calendar year 2012. Of the eight EPA Headquarters buildings, six have earned ENERGY STAR within the last three years. Currently, all 10 EPA regional offices have earned the ENERGY STAR, nine of which received it within the last three years.

Facility Projects Improve Stormwater Management

EPA's stormwater management efforts continued in FY 2012 in conjunction with the requirements set forth in EO 13514, EISA Section 438, and the *Guiding Principles*. In connection with its efforts to certify existing buildings as meeting the *Guiding Principles*, EPA worked with the facility managers

at the Environmental Science Center (ESC) in Fort Meade, Maryland, to inventory, diagram, and explain the operation of the existing stormwater management system, which is quite complex and effective, and developed routine maintenance procedures for the system. At the Large Lakes Research Station (LLRS) in Grosse Ile, Michigan, EPA developed a long-range plan for stormwater management at the site and initiated the construction of Phase I of that plan, which included treatment of first-flush water from the facility's roofs. In addition, EPA initiated a combined sewer overflow reduction/cistern project at EPA West, part of the Agency's Federal Triangle Headquarters Complex in downtown Washington, D.C., and began design work for the augmentation of the stormwater management system at the Main Building in RTP, North Carolina. A ribbon-cutting ceremony was also held in FY 2012 for the new green roof for the Sam Nunn Atlanta Federal Center in Atlanta, Georgia, where the EPA Region 4 Office is housed and is the principal building tenant.

Solid Waste Diversion Rate Increases to 63 Percent

EO 13514 requires federal agencies to meet a non-hazardous solid waste diversion rate of 50 percent by FY 2015. EPA exceeded this requirement in FY 2012 by achieving a waste diversion rate of 63 percent. Several EPA facilities significantly contributed to EPA's non-hazardous solid waste diversion rate increase through their ongoing source reduction, recycling, reuse, donation, composting, and other waste reduction efforts.

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In June 2012, EPA submitted to OMB and CEQ an update to its SSPP, a comprehensive, multiyear planning document that identifies targets for reducing Agencywide GHG emissions by FY 2020 and outlines the steps the Agency will take to achieve those reductions. In the SSPP, EPA summarized its efforts to improve the environmental and economic performance of its facilities to meet the requirements of EO 13514. The SSPP identifies the key milestones and major challenges EPA faces for achieving environmental performance goals related to GHG emission reductions; increased energy efficiency; greater water conservation; more use of renewable energy; better transportation management; development of more high performance sustainable buildings; coordination with regional and local planning efforts; recycling and pollution prevention; stormwater management; and sustainable acquisition. EPA's updated SSPP is available at <http://www.epa.gov/greeningepa/pubs/index.htm#sspp>.

This Energy Management and Conservation Program Annual Report highlights EPA's progress in FY 2012 toward implementing the strategies and meeting the milestones contained in the SSPP and gives a snapshot in time of EPA's current environmental performance.

GHG EMISSIONS INVENTORY AND REDUCTION EFFORTS

In January 2008, EPA voluntarily began developing a GHG emissions inventory (following the GHG Inventory Guidance developed by EPA's Center for Corporate Climate Leadership) to better understand and manage its carbon footprint. In addition to quantifying direct and indirect GHG emissions associated with energy consumption at the Agency's 35 reporting facilities, EPA's current inventory, in alignment with EO 13514 GHG emissions accounting and reporting guidance, now includes: mobile emissions from fleet vehicles and equipment; fugitive emissions associated with building fire suppression and mobile air conditioning equipment; and process emissions from laboratory research and other activities. EPA's inventory also reflects the environmental benefits of its green power and REC purchases on its reported GHG emissions.

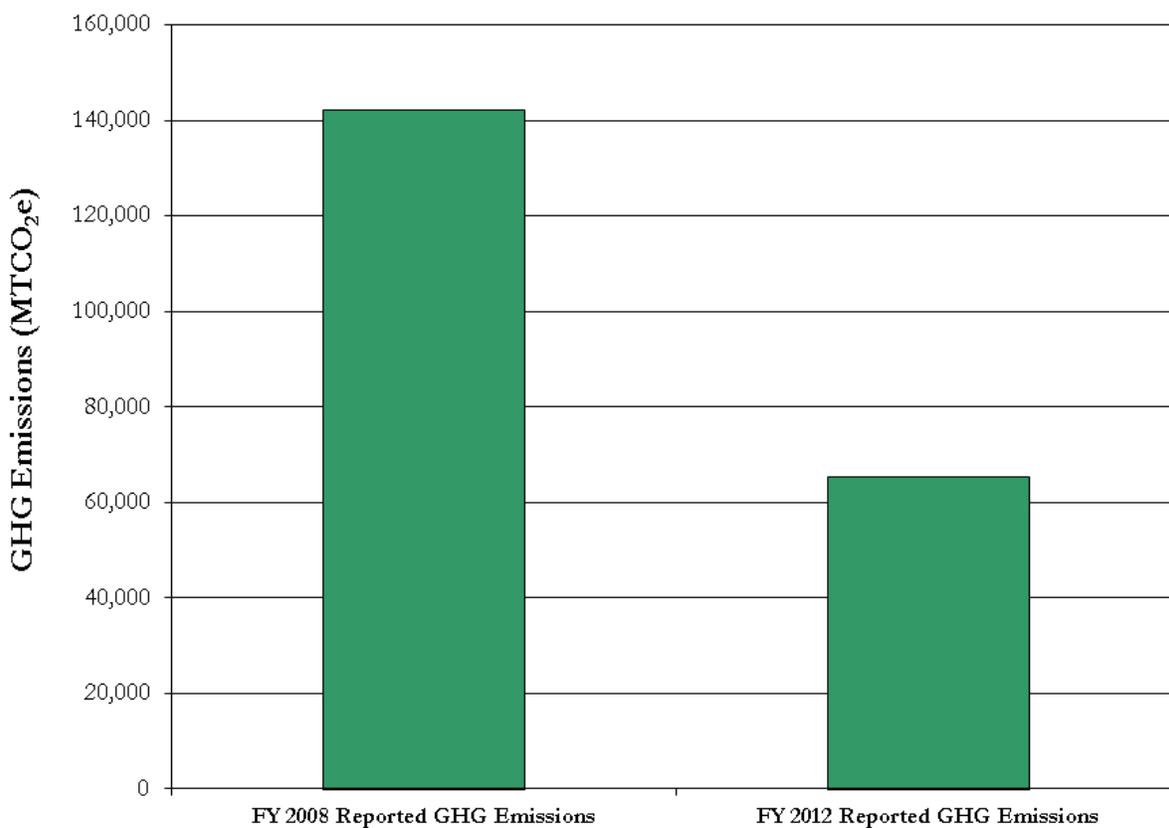
In accordance with the requirements of EO 13514, EPA has committed to reducing its combined Scope 1 and 2 GHG emissions 25 percent by FY 2020 from the FY 2008 baseline of 142,009 MTCO₂e, as well as reducing the required categories of Scope 3 GHG emissions by 8 percent by FY 2020 compared to its revised FY 2008 baseline of 71,126 MTCO₂e. More details on the Agency's GHG emission reduction strategies are available in the Agency's SSPP.

Reported Scope 1 and 2 GHG Emission Reductions

EPA's Scope 1 and 2 GHG Emissions Down 54.1 Percent From FY 2008 Baseline

EPA reported Scope 1 and 2 GHG emissions of 65,127 MTCO₂e in FY 2012, which is 5.8 percent lower than the Agency’s FY 2011 GHG emissions and 54.1 percent lower than its revised FY 2008 baseline (see Figure 1 below). Even when the Agency does not account for green power and REC purchases, EPA’s FY 2012 combined Scope 1 and 2 GHG emissions still decreased by 10,400 MTCO₂e, or approximately 7.3 percent, relative to the Agency’s revised FY 2008 baseline. EPA expects continued Scope 1 and 2 GHG emission reductions in FY 2013 based on energy efficiency projects at its facilities, consolidated or right-sized laboratory infrastructure, and future green power and REC purchases.

Figure 1. EPA’s Reported Scope 1 and 2 GHG Emissions, FY 2008 and FY 2012



In FY 2012, EPA revised its FY 2008 Scope 1 and 2 GHG emissions baseline (see Appendix A) to reflect updated square footage data, which is used to estimate fugitive GHG emissions from facility refrigeration and air conditioning equipment, and revised energy consumption data. The revised FY 2008 Scope 1 and 2 GHG emissions baseline is 142,009 MTCO₂e. These updates did not have a significant impact on EPA’s FY 2012 GHG emissions performance relative to the FY 2008 baseline.

In FY 2012, EPA completed a pilot project at ESC in Fort Meade, Maryland, to evaluate the accuracy of its estimate for Scope 1 fugitive GHG emissions associated with building air conditioning and refrigeration equipment leakage at reporting facilities. Due to the challenges of collecting activity data from individual reporting facilities, the Agency historically estimated these fugitive emissions using a default emissions factor. Based on refrigerant purchase, disposal, and equipment maintenance records that the facility staff provided during this pilot project, EPA

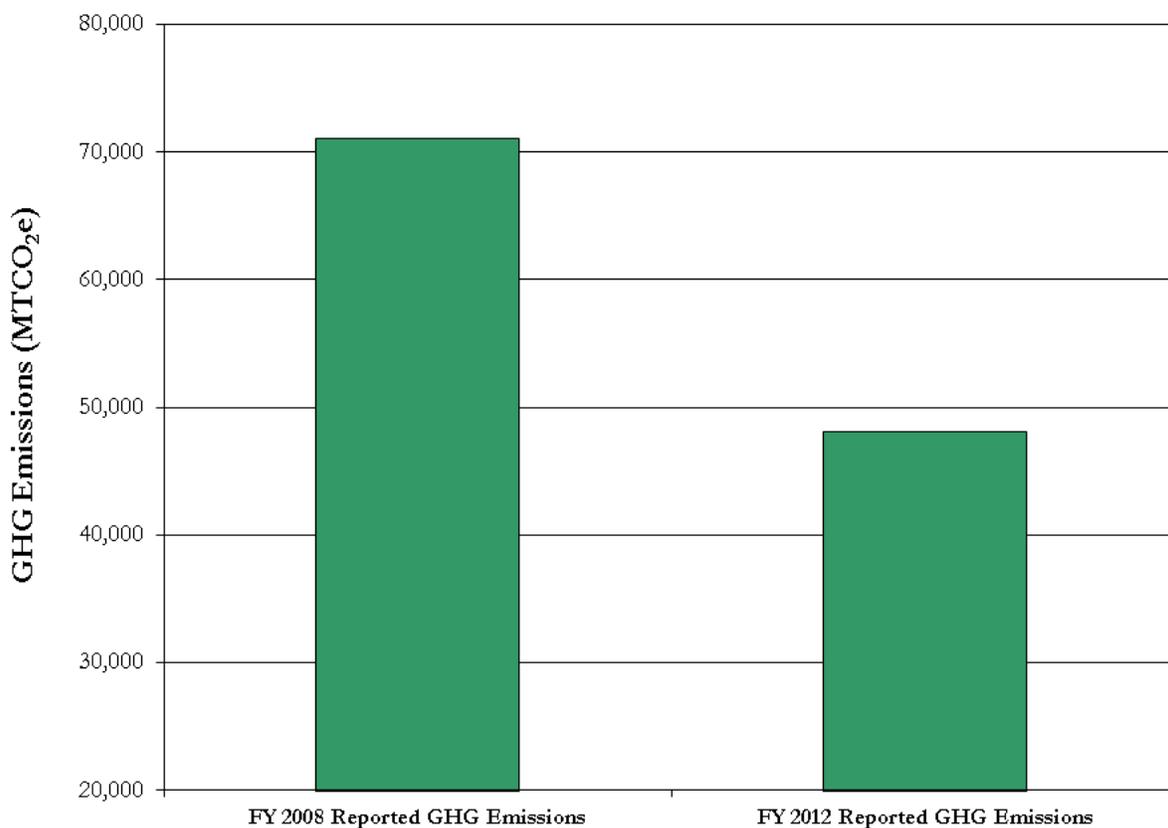
calculated the GHG emissions from refrigerant leakage that occurred during equipment maintenance activities during FY 2012. When comparing the GHG emissions from actual laboratory data to the estimated GHG emissions from the default emissions factor, the difference was insignificant. Therefore, in this case, the default emission factor appears to be a valid tool for estimating these emissions whenever actual data are unavailable.

Reported Scope 3 GHG Emissions

EPA's Scope 3 GHG Emissions Down 32.3 Percent From FY 2008 Baseline

Scope 3 GHG emissions include indirect emissions from sources not owned or directly controlled by EPA but are related to the Agency's activities, such as employee business travel and commuting, contracted solid waste disposal, and contracted wastewater treatment. EPA's goal is to reduce the required subset of its Scope 3 GHG emissions by 8 percent by FY 2020 compared to its revised FY 2008 baseline of 71,126 MTCO₂e (see Appendix A). In FY 2012, EPA's Scope 3 GHG emissions were 48,138 MTCO₂e, a decrease of 17.3 percent from EPA's current FY 2011 GHG emissions and 32.3 percent from the revised FY 2008 baseline (see Figure 2 below).

Figure 2. EPA's Reported Scope 3 GHG Emissions, FY 2008 and FY 2012



Business Travel and Video Conferencing

Decreased employee business travel—attributed to employees’ increased use of video teleconferencing, combined with a reduced Agency travel budget—contributed the most to EPA’s FY 2012 Scope 3 GHG emissions reductions. EPA’s GHG emissions associated with business air travel were 29.4 percent lower in FY 2012 compared to FY 2011 and 46.0 percent lower compared to the FY 2008 baseline. EPA has video teleconferencing units installed Agencywide.

Commuting Emissions and Telework

EPA revised its FY 2008 Scope 3 GHG baseline inventory (see Appendix A) to reflect updated data for employee commuting. Triggered by a methodological change in the GSA Carbon Footprint Tool commuter survey module, this update reduced EPA’s FY 2008 commuting-related GHG emissions by 18.4 percent and its total required Scope 3 GHG emissions by 10.7 percent.

To further reduce its Scope 3 GHG emissions, and in accordance with the government-wide initiative to facilitate employee telework, EPA is making a significant commitment to telework, which the Agency hopes will decrease employee commuting-related GHG emissions and increase efficiencies in leased buildings over the coming fiscal years.

EPA’s current telework program allows eligible staff to work from home intermittently. This helps to reduce the number of days employees commute to their workplace each week, which decreases fuel consumption, traffic congestion, and the GHG emissions associated with employee commuting. As of FY 2012, EPA estimates its employees increased their average telework hours per pay period by 35.3 percent compared to FY 2011, and by 136.4 percent compared to FY 2009. EPA estimates that employee telework helped the Agency avoid nearly 2,000 MTCO₂e of commuting-related GHG emissions in FY 2011 (the last year for which data are available).

EPA’s pledge to increase telework options is one of a variety of strategies that the Agency is exploring to reduce unnecessary space at its laboratory and office facilities, and thus reduce its environmental impact. With a broader use of telework, the Agency is poised to continue exceeding its Scope 3 GHG emissions reduction goal of 8 percent by FY 2020.

Leased Office Space

EPA also voluntarily reports Scope 3 GHG emissions from non-reporting leased space, though this is not currently required by EO 13514. In FY 2012, Scope 3 GHG emissions from energy use at non-reporting facilities were 18.6 percent lower than the revised FY 2008 baseline. EPA expects that increased telework and reducing unnecessary office and support space will continue to reduce Scope 3 GHG emissions in this area.

The revised *Federal GHG Accounting and Reporting Guidance* (published on June 4, 2012) suggests that this source of optional Scope 3 GHG emissions may become mandatory for FY 2013 reporting. Having calculated and voluntarily reported these emissions since FY 2010, EPA is prepared to continue reporting these emissions should they become required in the future.

Consolidating Laboratory Infrastructure and Improving Laboratory Utilization

EPA is pursuing a number of paths to reduce the environmental footprint and operating costs of its laboratory infrastructure. Efforts include facility consolidation, reductions in the number of fume hoods at laboratories being renovated, more efficient allocation of research infrastructure among scientists, and exploring new technologies to safely reduce air flows and associated energy use (i.e., temporary hibernation of fume hoods). Fume hoods are one of the most energy-intensive and expensive components (both for initial and ongoing costs) of EPA's research infrastructure.

In FY 2012, EPA continued work on relocating its National Health and Environmental Effects Research Laboratory and Reproductive Toxicology Facility (NHEERL/RTF) in RTP, North Carolina, from a leased building into the Agency's existing Main Building on the RTP campus. In addition to increasing the utilization of the Main Building and reducing the Agency's rent and utility costs, this consolidation will reduce laboratory and office space by approximately 32,200 GSF and significantly cut EPA's Scope 1 and 2 GHG emissions. The consolidation will also improve EPA's energy intensity, as EPA will be vacating a very energy-intensive laboratory and moving into less energy-intensive space. As of September 2012, EPA had signed design/build contracts related to the consolidation, covering the changes to 116 existing laboratory modules and associated office space at the Main Building to accommodate incoming research staff. The consolidation project is expected to be completed by early summer 2014.

EPA is also undertaking right-sizing of laboratory infrastructure projects in order to significantly reduce the facilities' energy use and utility costs. EPA continued work on the second phase of a mechanical system replacement project at its Atlantic Ecology Division (AED) Laboratory in Narragansett, Rhode Island, in 2012 that will result in a reduction of laboratory fume hoods from 28 to 16 when completed. In addition, EPA started construction of the first phase of an infrastructure replacement project (IRP) at the National Air and Radiation Environmental Laboratory (NAREL) in Montgomery, Alabama, which will reduce the number of fume hoods from 44 to 32, or by approximately 25 percent, once complete.

Looking ahead to FY 2013, EPA is working with GSA on plans to reduce the size of its Chapel Hill Laboratory in Chapel Hill, North Carolina. EPA's space in the multi-tenant facility should be reduced by approximately 31,000 GSF, or approximately 20 percent, in connection with a mechanical system replacement, and EPA will reduce its fume hood infrastructure as well. Upon completion, EPA will occupy significantly less space and operate fewer fume hoods, both of which will significantly reduce the Agency's operating costs.

OMB Sustainability/Energy Scorecard

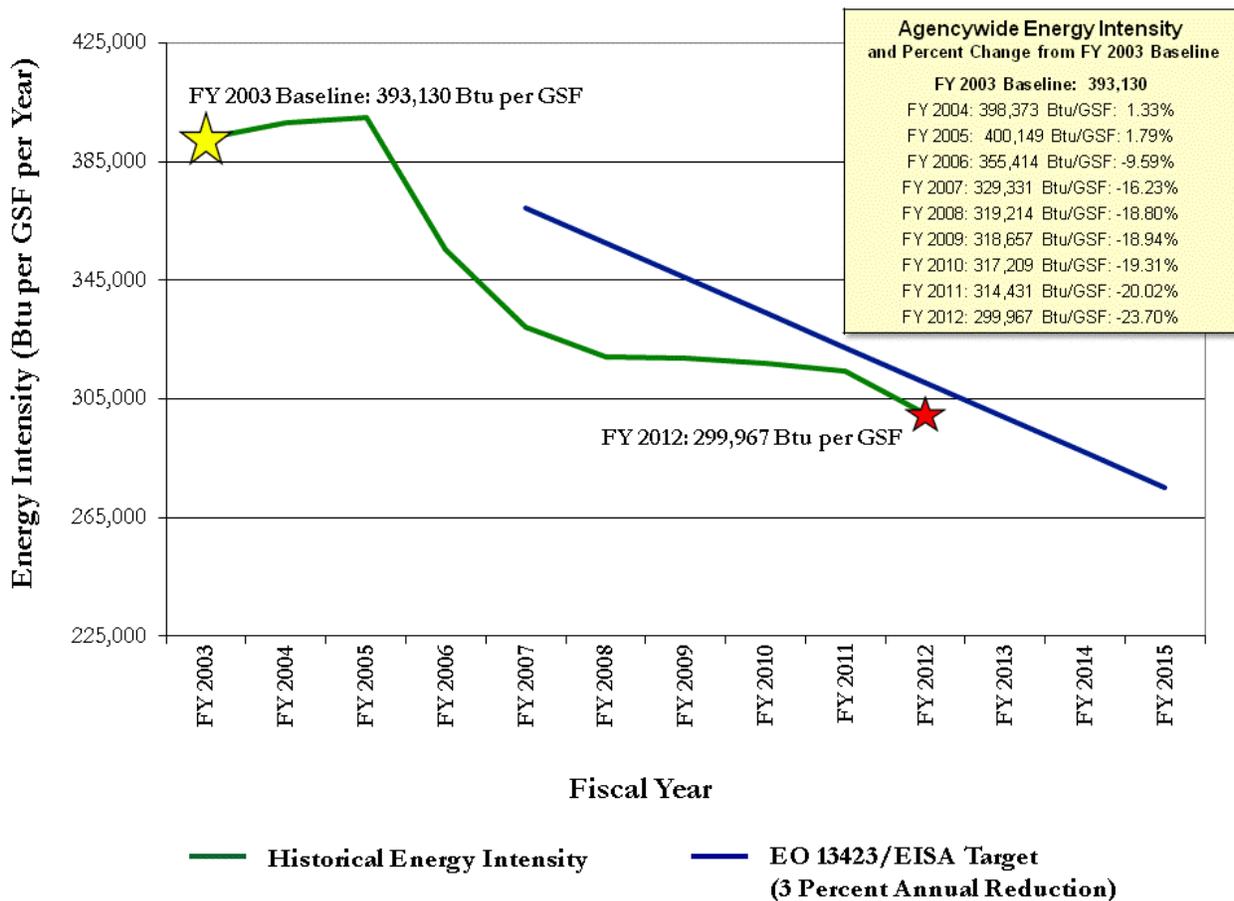
EPA scored green in every category on both its January 2012 and July 2012 OMB Sustainability/Energy scorecards, demonstrating the success of the Agency's long-term, comprehensive approach to sustainability. During the previous year, EPA's July 2011 scorecard showed a yellow rating for Scope 3 GHG emissions; however, EPA achieved and is now maintaining a green rating in this category, based on the Agency's FY 2012 Scope 3 GHG emissions reductions. EPA expects to continue to achieve green ratings in all categories again in FY 2013.

ENERGY EFFICIENCY PERFORMANCE

EPA's Reported FY 2012 Energy Intensity Down 23.7 Percent From FY 2003 Baseline

EISA and EO 13423 require federal agencies to reduce their energy intensity by 3 percent per year, or 30 percent by FY 2015, compared to the revised FY 2003 baseline (see Appendix B). In 2012, EPA exceeded the 21 percent cumulative energy intensity reductions required for FY 2012. EPA's FY 2012 reported energy intensity was 299,967 Btu per GSF,^{5,6} which is 4.6 percent less than its FY 2011 energy intensity and 23.7 percent below the FY 2003 baseline (see Figure 3 below). EPA will continue to closely manage its energy use in FY 2013 and expects to meet or exceed the cumulative 30 percent energy intensity reduction requirement by FY 2015.

Figure 3. EPA Annual Energy Intensity Relative to EO 13423/EISA Target



⁵ EPA's reported energy intensity accounts for source energy savings credits. Without accounting for source energy savings credits, EPA's FY 2012 reported energy intensity is 302,883 Btu per GSF.

⁶ FY 2011 was the last year federal agencies were eligible to receive a green power credit against reported energy use.

In FY 2012, EPA excluded one source of energy consumption—its aquatic research vessel, *Lake Explorer II*—from federal energy performance requirements, following the criteria included in DOE’s Federal Energy Management Program (FEMP) *Guidelines for Establishing Criteria for Excluding Buildings*. More information on this vessel is listed in Appendix C.

Current Energy Retrofits and Capital Improvement Projects

In FY 2012, several EPA facilities achieved significant energy intensity reductions as a result of recently completed projects, which contributed to the Agency’s overall progress. In addition, EPA has several projects underway that will help contribute to the Agency’s future energy savings.

In FY 2012, EPA continued work on a multi-phase IRP at its AWBERC facility in Cincinnati, Ohio. The Agency completed IRP Phase III construction, awarded the contract for IRP Phase V construction in July 2012, and expected completion of IRP Phase IV in December 2012. In FY 2012, the Agency also initiated an energy savings performance contract (ESPC) procurement process for a boiler replacement project at the AWBERC facility and completed chiller plant automation and operational improvements.

Also in FY 2012, EPA continued significant energy-saving projects at its Main Building in RTP, North Carolina. In February 2012, EPA completed the construction and commissioning of a heat recovery system for Main Buildings B, D, and E that is expected to save 16.5 billion Btu per year, equal to a 4.5 percent reduction in energy intensity for the facility. In addition, EPA continued work on a comprehensive laboratory controls optimization phase 2 (LCOP-2) for the Main Building, which includes: fume hood control upgrades; decoupling of lights and fume hoods that previously resulted in higher than necessary ventilation rates; and fume hood retrofits that allow containment at lower air flow rates. The fume hood retrofit project was 80 percent complete as of FY 2012 and is expected to reduce the facility’s energy use by 23.4 billion Btu per year, or a 6.4 percent reduction in energy intensity for the facility.

EPA also initiated work on a resource efficiency manager (REM) contract for its Chapel Hill Laboratory in Chapel Hill, North Carolina. This part-time building engineer would be dedicated exclusively to managing energy use at the Chapel Hill Laboratory, which is currently EPA’s most energy- and cost-intensive laboratory. The annual compensation for this REM position would be paid back through cost savings accrued from energy conservation projects that the REM helps identify and implement. EPA plans to complete the hiring process in FY 2013.

Other significant energy-saving projects underway or completed in FY 2012 include:

- Repairing existing chillers which ended the use of temporary chillers at the National Vehicle and Fuel Emissions Laboratory (NVFEL) in Ann Arbor, Michigan.
- Improving operation of the co-generation unit at the Region 9 Laboratory in Richmond, California.
- Substantially completing a boiler burner replacement project at ESC in Fort Meade, Maryland, which will replace the previously oversized units and help to improve energy efficiency.

- Replacing windows, re-configuring chiller/cooling tower piping, and improving operational efficiency at the National Exposure Research Laboratory (ORD Laboratory) in Athens, Georgia.
- Hibernating fume hoods at AWBERC in Cincinnati, Ohio, and the Chapel Hill Laboratory in Chapel Hill, North Carolina.
- Upgrading lighting at AWBERC in Cincinnati, Ohio; the Main Building in RTP, North Carolina; the AED Laboratory in Narragansett, Rhode Island; and the Robert S. Kerr Environmental Research Center (ORD Laboratory) in Ada, Oklahoma.

Once completed, these capital improvement projects are expected to yield significant energy savings.

In FY 2012, EPA made progress on the energy efficiency efforts listed in Table 1 below, which represent significant annual energy savings. EPA believes the much milder winter in FY 2012 also contributed significantly to its FY 2012 energy use reductions.

Table 1. Energy Conservation Projects Underway or Completed in FY 2012		
<i>Facility</i>	<i>Description of Improvements</i>	<i>Estimated Annual Energy Savings</i>
AWBERC in Cincinnati, Ohio	Continued construction of IRP Phase IV, which was substantially completed in December 2012. EPA also awarded the contract for IRP Phase V construction, the last major phase, in July 2012.	EPA expects the IRP will save 11.6 billion Btu in FY 2012.
	Initiated an ESPC procurement process for a boiler replacement in FY 2012. EPA expects to select a contractor for the preliminary assessment by end of the second quarter of FY 2013.	EPA anticipates energy savings of 14 billion Btu per year once the project is completed.
	Completed a fume hood air flow reduction pilot project to reduce minimum flow rates in fume hoods based on new ANSI/AIHA Z9.5 laboratory ventilation standards. Flows were reduced to 175 cubic feet per minute (cfm) for a standard 6-foot hood; previous minimum flow was 250 cfm. EPA implemented these changes during IRP Phase IVc.	EPA anticipates energy savings of 6 billion Btu per year.
	Completed the automation and commissioning of the chiller plant, which included a new sequence of operations, during the third quarter of FY 2012.	
	Contracted to retrofit variable air volume (VAV) fume hoods to provide hibernation/decommissioning capabilities; this will allow fume hoods to operate at 90 cfm and thus save energy when the hoods are not in use. The project was completed in November 2012.	
	Began installation of occupancy sensors in offices and administrative spaces to enable the lights to turn off and the space temperatures to fluctuate $\pm 5^{\circ}$ Fahrenheit off set point when an office is unoccupied. This project was 80 percent complete at the end of FY 2012.	
	Contracted to install occupancy sensors in the laboratories, enabling the lighting to turn off and air	

	changes to be adjusted back to four air changes per hour, where appropriate, during unoccupied times. Installation during IRP Phase IVc is substantially complete; installation during IRP Phases I, II, and III should be completed by May 2013.	
	Contracted to install “advanced T8” (24-watt bulb) lighting in the stairwells and boiler room. Completion is expected in May 2013.	
	Completed modification of three biosafety level 2 fume hoods to provide re-circulated air, which will dramatically reduce energy use and air flows.	
Main Building in RTP, North Carolina	Completed construction and commissioning of a heat recovery system in February 2012.	EPA anticipates total energy savings of 16.5 billion Btu, or a 4.5 percent reduction in energy intensity for the facility.
	Completed decoupling of laboratory lighting and ventilation controls, upgraded sensors and control systems capabilities, and lowered fume hood air flows.	EPA expects energy savings of 23.4 billion Btu per year (15.4 billion Btu from Buildings D and E, and 8 billion Btu from Building B) once these LCOP-2 projects are completed.
	Completed 80 percent of planned fume hood retrofits in FY 2012. Laboratory Building D fume hood retrofits were completed in April 2012, and the Building B and E fume hood upgrades were completed in January 2013.	
	Completed laboratory Buildings B, D, and E downstream rebalancing.	EPA anticipates energy savings of 2.5 billion Btu per year.
	Completed LED lighting replacement projects in the parking garage.	EPA anticipates energy savings of 0.8 billion Btu per year.
NHEERL/RTF Consolidation in RTP, North Carolina	Design/build contracts were awarded in August 2012 to accommodate the consolidation of laboratory staff and equipment from the NHEERL/RTF facility into the Main Building. Designs for the renovations started in November 2012. Construction is expected to begin in May 2013 and be completed by early summer 2014. Approximately 116 laboratory modules would be remodeled at the Main Building as part of the consolidation. There will be a net of 25 new fume hoods and four new biosafety cabinets in the Main Building associated with the consolidation.	EPA anticipates a reduction in laboratory space of approximately 32,200 GSF, as well as rent and utility cost savings. Agency energy intensity should drop slightly (as this is a per GSF metric), and Scope 1 and 2 GHG emissions should drop significantly (as this is an absolute metric).
Chapel Hill Laboratory in Chapel Hill, North Carolina	Completed terminal box calibration and building automation system (BAS) repairs in FY 2012.	EPA anticipates energy savings of 2.2 billion Btu per year.
	Completed air handling unit (AHU) pressurization upgrades in FY 2012.	EPA anticipates energy savings of 3.4 billion Btu per year.
	Completed temporary hibernation of 11 of 30 fume	Because this is a constant

	hoods in the second quarter of FY 2012. EPA will hibernate six additional fume hoods at the facility in FY 2013.	volume laboratory, EPA only anticipates small energy savings from this effort.
	Identified steam system problems and necessary upgrades. System improvements are anticipated to be completed in FY 2013.	EPA anticipates significant energy savings from this project when completed in FY 2014.
	Initiated the process of hiring a REM who would be dedicated exclusively to managing energy use at the facility. EPA expects contract execution in June 2013.	EPA anticipates energy savings of 6.3 billion Btu, or 7 percent, by FY 2014.
ESC in Fort Meade, Maryland	Continued work on a burner replacement project in FY 2012. Work on two boilers was 85 percent complete by September 2012. Replacement of all three burners was completed in December 2012, with final boiler and control tests (under full load) completed in January 2013.	EPA expects energy use will decrease by 4.5 billion Btu per year.
NAREL in Montgomery, Alabama	Awarded boiler replacement design contract in FY 2012.	EPA anticipates energy savings of 843 million Btu per year.
	Initiated construction on IRP Phase Ia in FY 2012. Completion is expected in FY 2013.	EPA anticipates energy savings of 3.5 billion Btu per year.
	Reached 90 percent design completion for IRP Phase Ib. The project will eventually reduce fume hood capacity by 25 percent.	EPA anticipates energy savings of an additional 3.5 billion Btu per year.
	Completed computer room air conditioning system replacement.	EPA anticipates energy savings of 224 million Btu per year.
Region 9 Laboratory in Richmond, California	Recommissioned the facility's co-generation operations.	EPA anticipates energy savings of 4 million Btu per year.
	Continued work on a VAV conversion project in conjunction with expiration of the facility's current lease. The new lease will require mechanical system upgrades.	EPA anticipates energy savings of 5 billion Btu per year when the mechanical upgrades are completed.
NVFEL in Ann Arbor, Michigan	Initiated process metering study and implementation.	EPA anticipates a process energy exclusion of 22.6 billion Btu per year.
AED Laboratory in Narragansett, Rhode Island	Completed chemistry laboratory modernization and HVAC system replacement in June 2012. This represents the first phase of a major multi-year mechanical system IRP.	EPA anticipates energy savings of 3 billion Btu per year.
	Installed four 1-kilowatt (kW) wind turbines and a 5-kW photovoltaic (PV) array in October 2011.	EPA anticipates energy savings of 75 million Btu per year.
Region 7 Laboratory in Kansas City, Kansas	Made various BAS programming adjustments based on recommissioning report recommendations.	EPA anticipates energy savings of 1.6 billion Btu per year.
New England Regional Laboratory	Contracted for installation of a dry cooler to supplement the process chiller. The project is expected to be	EPA anticipates energy savings of 134 million

(NERL) in Chelmsford, Massachusetts	completed in FY 2013.	Btu per year.
ORD Laboratory in Athens, Georgia	Replaced 40-year-old single-pane windows on the main laboratory building with energy-efficient, double-pane, low-e windows. The window replacement contract was in the punch list stage as of December 2012.	EPA anticipates energy savings of 1.3 billion Btu per year.
	Awarded a construction contract for controls, piping, pump, and cooling tower upgrades in the fourth quarter of FY 2012.	EPA anticipates energy savings of nearly 1 billion Btu per year.

ESPCs and Cost-Saving Projects

As with many federal agencies, EPA has limited capital funds to maintain existing laboratory infrastructure, replace aging infrastructure, and reconfigure existing research laboratory space to meet mission-critical needs. EPA must carefully focus its staff, resources, and funding to maximize programmatic, energy conservation, and infrastructure right-sizing opportunities.

When appropriate, EPA considers ESPCs as a potential funding source for energy-saving projects, if they enable the Agency to reduce the burden of up-front capital costs. In February 2012, in connection with the White House's Better Buildings Initiative, EPA committed to pursue two large-scale ESPC or ESPC-like projects worth \$9 million. Through these mechanisms, EPA is working on a boiler replacement project at AWBERC in Cincinnati, Ohio, and a PV installation at the Region 2 Laboratory in Edison, New Jersey. The ESPC at the AWBERC facility will replace two aging steam boilers with a new heating system proposed by the energy service company. EPA expects to execute this contract in FY 2013.

In April 2013, EPA anticipates signing a 10-year ESPC and power purchase agreement (PPA) hybrid for the Edison laboratory's PV installation. Because of the dramatically lower cost of PV panels and lower interest rates, EPA believes it will be able to procure electricity at below the current market rate. This agreement could provide the Edison laboratory with more than 40 percent of its electricity through renewable sources (equivalent to more than 6.8 billion Btu) at half the current cost.

In late FY 2012, EPA initiated the process for a utility energy service contract (UESC) project at its Region 10 Laboratory in Manchester, Washington, to retrofit the fuel oil-fired boilers with natural gas. Fuel oil is currently the primary and only fuel used in the laboratory's boilers. This project presents significant cost savings for the Agency, as well as large GHG emissions reductions, as natural gas is cheaper and produces fewer emissions than fuel oil.

Many of the Agency's energy-saving projects are often not viable candidates for ESPCs (e.g., due to the extreme age and complexity of mechanical systems, the laboratories' remote locations, and the smaller size of available projects). However, EPA recognizes ESPCs and UESCs as useful vehicles for completing projects and will continue to evaluate their use for future projects.

EISA Section 432 Implementation—Energy Assessments

EPA Completes 100 Percent of Energy Assessments Required by EISA, Ready for the Next Four Years of EISA Reporting

In FY 2012, EPA completed energy assessments at AWBERC in Cincinnati, Ohio, and its Main Building at RTP, North Carolina, which collectively represent 22 percent of the total energy use of EPA's covered facilities (based on FY 2008 data, per EISA Section 432 guidance). In addition, EPA completed all or a portion of EISA recommissioning requirements at AWBERC, the Main Building in RTP, and LLRS in Grosse Ile, Michigan. The Agency collected information on potential energy conservation measures and compiled the associated implementation costs, estimated annual energy savings, and estimated annual cost savings in a comprehensive report submitted to FEMP in June 2012. See Table 2 below for a list of the reported measures.

<i>Facility</i>	<i>Description of Potential Projects</i>	<i>Estimated Annual Energy Savings</i>
Main Building in RTP, North Carolina	Establish occupied/unoccupied modes and VAV operation for laboratory spaces, as well as establish occupied/unoccupied operation for office and administrative areas and corridors.	2.3 billion Btu
	Complete air flow reduction in the animal suites.	3.1 billion Btu
	Install a process water loop.	0.4 billion Btu
	Establish High Bay air and occupancy control, including air changes per hour reductions, economizers, winter set points, rollup door interlocks with VAV, and lighting and VAV controlled by occupancy.	4.5 billion Btu
	Install an exhaust energy recovery glycol loop system.	1.3 billion Btu
	Initiate laboratory and office occupancy air flow reductions.	234 million Btu
AWBERC in Cincinnati, Ohio (IRP Phase IV)	Convert laboratory/office air handler from constant air volume to VAV.	8.7 billion Btu
	Convert laboratory supply and exhaust valves from constant air volume to VAV.	

With the completion of energy assessments at AWBERC and RTP, EPA successfully completed its first four-year reporting cycle required under EISA Section 432 by evaluating 100 percent of its covered facilities. Having met this requirement, EPA is now focusing on implementing key projects identified during all four years of assessments and working with the facilities on measurement and verification efforts. EPA will continue to re-evaluate its covered facilities per EISA requirements for further energy- and water-saving opportunities, relying on the federal energy managers' expertise at these facilities.

Green Power

EPA Continues to Cover 100 Percent of Electricity Use With Green Power

In FY 2006, EPA became the first federal agency to cover 100 percent of its electricity use with green power. In FY 2012, EPA continued to be a leader among federal agencies by covering 100 percent of its FY 2012 electricity use with purchased green power and RECs for the seventh consecutive year.

In August 2011, EPA procured three separate blanket purchase agreements for a total of more than 265 million kWh of RECs that supported renewable energy generation from wind and biomass resources in Louisiana, Iowa, Missouri, and Nebraska. Combined with four additional contracts for delivered green power and RECs, EPA has purchased more than 266 million kWh of renewable energy in FY 2012, enough to cover 100 percent of the Agency's estimated FY 2012 annual electricity use at its 175 facilities across the country.

In September 2012, EPA signed a new blanket purchase agreement for more than 246 million kWh of RECs, for delivery in FY 2013. This is equal to 100 percent of all of EPA's estimated FY 2013 conventional electricity consumption in its offices, laboratories, and support buildings. In an effort to maximize the positive impacts of its green power purchases, EPA made the FY 2013 REC purchase using a newly developed solicitation strategy to procure RECs from regions of the United States where renewable energy generation would displace the "dirtiest" conventional electric generation.

The Emissions & Generation Resource Integrated Database (eGRID) is a comprehensive source of data on the environmental characteristics of nearly all electric power generated in the United States. Per the *Federal GHG Accounting and Reporting Guidance* and the *FEMP Annual GHG and Sustainability Data Report*, EPA uses the location and amount of conventionally generated electricity purchased; eGRID data; and the location, amount, and type of green power procured to calculate Scope 2 GHG emissions. EPA anticipates these new, targeted REC purchases will increase EPA's Scope 2 GHG emission reductions in FY 2013.

Advanced Metering

Advanced Metering Hardware Installed or Under Construction to Capture 72.0 Percent of Agencywide Reportable Energy Consumption

EPAct 2005 and EISA require federal agencies to install advanced metering equipment for electricity, as well as steam and natural gas, to the maximum extent practicable by FY 2012 and FY 2016 respectively. When funding is available, EPA installs advanced meters for natural gas at the same time that it installs advanced electric meters. In 2012, EPA completed installation of advanced metering hardware at six laboratory facilities:

- ESC in Fort Meade, Maryland
- ORD Laboratory in Athens, Georgia
- Science and Ecosystem Support Division (SESD) Laboratory in Athens, Georgia
- Chapel Hill Laboratory in Chapel Hill, North Carolina
- Mid-Continent Ecology Division (MED) Laboratory in Duluth, Minnesota
- NVFEL in Ann Arbor, Michigan

By the end of 2012, EPA had approximately 72.0 percent of its energy measured by advanced metering hardware.

Advanced metering installations at some EPA facilities were not economical as stand-alone projects in FY 2012; however, EPA will expand the reach of its advanced metering systems in FY 2013 in connection with large IRPs at three facilities:

- AED Laboratory in Narragansett, Rhode Island
- NAREL in Montgomery, Alabama
- Western Ecology Division (WED) Laboratory in Corvallis, Oregon

WATER CONSERVATION

EPA Reduces FY 2012 Water Intensity 22.5 Percent From FY 2007 Baseline

EO 13514 requires federal agencies to reduce their potable water intensity by 2 percent per year through FY 2020, based on an FY 2007 baseline. Because EPA ran an active and successful water conservation program in the mid 2000s, EPA's starting FY 2007 baseline was a low 35.6 gallons per GSF. Nevertheless, EPA continues to far exceed federal water intensity reduction requirements, including the new EO 13514 requirements for FY 2012, and is on track to meet the FY 2020 federal requirement, as well.

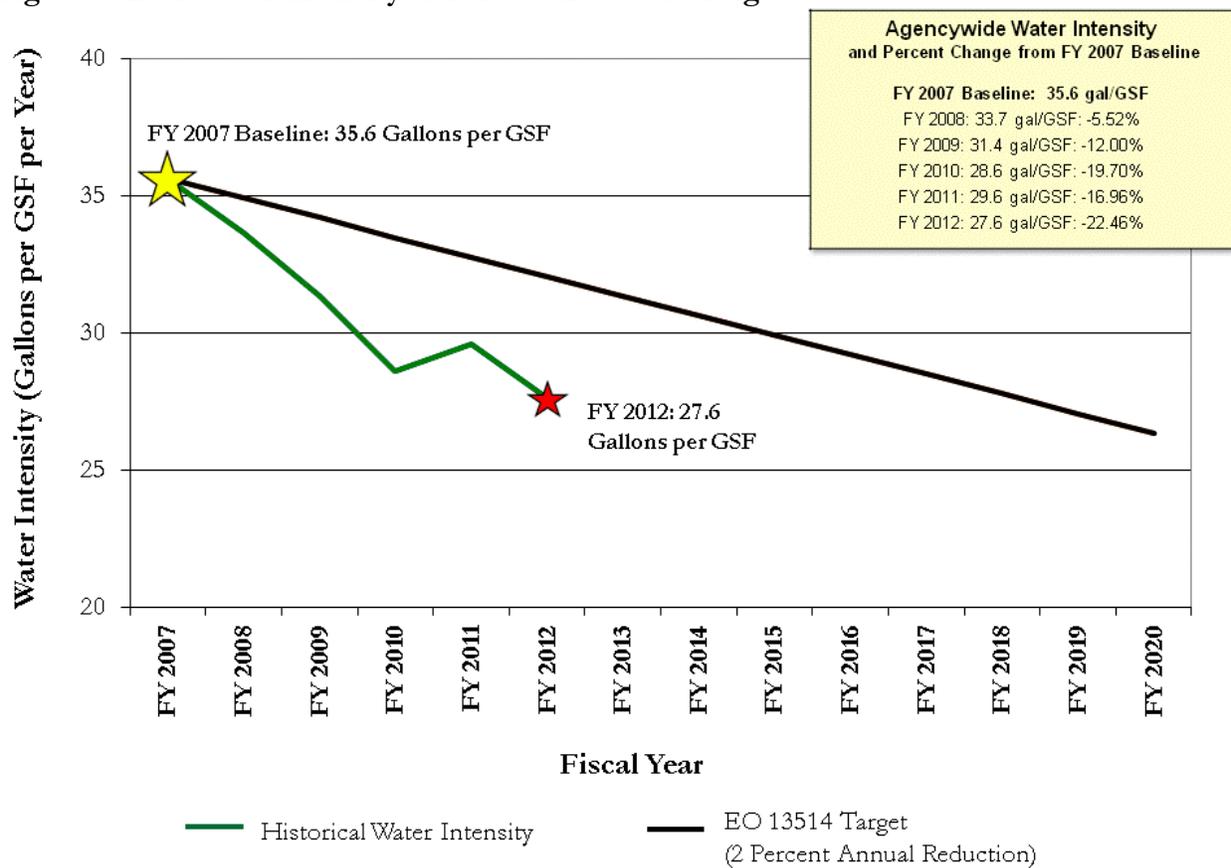
Through water-saving measures and capital improvement projects, EPA exceeded its water performance goal for FY 2012, achieving a water intensity of 27.6 gallons per GSF, which is a decrease of 22.5 percent compared with the FY 2007 baseline (see Figure 4 on page 23) and a decrease of 6.6 percent compared to FY 2011. To put these savings into perspective, EPA used 136.5 million gallons of water to support its FY 2007 operations, yet only 106.7 million gallons of water to support its FY 2012 operations.

Several EPA facilities exceeded their water reduction goals with projects completed in FY 2012. For example, the MED Laboratory in Duluth, Minnesota, was able to reduce its water use by 38.6 percent compared to FY 2011, and LLRS in Grosse Ile, Michigan, was able to reduce its water use by 84.8 percent compared to FY 2011. Replacing toilets and urinals with high-efficiency models contributed to water savings at both facilities.

Other facilities also achieved greater than a 15 percent reduction in water use compared to FY 2011 by implementing best management practices. Those facilities include:

- NERL in Chelmsford, Massachusetts
- Gulf Ecology Division (GED) Laboratory in Gulf Breeze, Florida
- MED in Duluth, Minnesota
- LLRS in Grosse Ile, Michigan
- ORD Laboratory in Ada, Oklahoma
- Region 6 Laboratory in Houston, Texas
- Pacific Coastal Ecology Branch Laboratory in Newport, Oregon

Figure 4. EPA Water Intensity Relative to EO 13514 Target



EPA’s FY 2012 water conservation efforts were guided by the Agency’s Water Conservation Strategy, which outlines specific water reduction opportunities at each EPA facility and confirms adequate savings to meet the Agency’s FY 2020 goals. This strategy is discussed in more detail in the Agency’s SSPP.

Water Conservation Retrofits and Capital Improvements

EPA started, continued, or completed numerous water conservation projects in FY 2012, as listed in Table 3 below, which helped to significantly reduce the Agency’s annual potable water use. EPA estimates that projects completed in FY 2012 saved approximately 1.2 million gallons of potable water per year.

In particular, EPA continued to work on the condensate recovery system at its Main Building in RTP, North Carolina. This project is expected to reduce water use at the central utility plant (CUP) that serves the Main Building⁷ by 6 to 8 million gallons per year once completed. In addition, EPA completed a study on the use of publicly owned treatment works (POTW)-treated effluent water in the CUP cooling towers. The Agency is proceeding with the preliminary design and expects to reduce potable water demand by 12 to 16 million gallons through this project.

EPA does not report CUP water as part of its potable water consumption, and thus cannot claim credit for the water savings resulting from these projects. Regardless, EPA still pursues these water-saving projects because of its commitment to the environment and the surrounding community, which has experienced droughts in recent years. By reducing its water use, EPA will lower the demand on the public water supply.

Also in FY 2012, EPA conducted a feasibility study at its Testing and Evaluation (T&E) Facility in Cincinnati, Ohio—a unique research center that studies drinking and waste water in large water delivery and sewage collection and treatment systems—for eliminating single-pass cooling for equipment used at the laboratory. EPA also initiated a collaborative effort with researchers at the facility to identify opportunities for reducing the need for potable water in research. Since FY 2007, this facility’s water use has ranged from 10 to 13.8 million gallons of potable water per year, averaging 11.8 million gallons annually, which means the T&E facility alone can raise or lower EPA’s water use by up to 3.5 percent annually.

Table 3. Water Conservation Projects Underway or Completed in FY 2012

<i>Facility</i>	<i>Description of Improvements</i>	<i>Estimated Annual Water Savings</i>
Main Building in RTP, North Carolina	Continued work on a condensate recovery system in FY 2012. EPA is now working on designing, constructing, and commissioning the condensate water/cooling tower delivery apparatus and control sequence.	6 to 8 million gallons
	Completed a water quality and feasibility analysis regarding the possible use of POTW-treated effluent water from the sewage treatment plant in the CUP cooling towers. Preliminary design of the reclaimed wastewater system and the CUP was started in December 2012.	12 to 16 million gallons
NERL in Chelmsford, Massachusetts	Funded work on a condensate recovery project in July 2012, initiated project work in late FY 2012, and completed work in October 2012.	200,000 gallons
MED Laboratory in Duluth,	Completed toilet and urinal replacements in June 2012.	309,000 gallons

⁷ The National Institutes of Environmental Health Science owns and operates the CUP that serves EPA’s Main Building and National Computer Center in RTP, North Carolina.

Minnesota		
LLRS in Grosse Ile, Michigan	Completed toilet and urinal replacements in May 2012.	158,000 gallons
	Revised the facility's water management plan in October 2011 in connection with EPA's efforts to meet the <i>Guiding Principles</i> .	
Region 8 Laboratory in Golden, Colorado	Completed an irrigation system optimization project in May 2012 to improve the system's efficiency. This project involved: replacing and raising sprinkler heads; adjusting the location of sprinklers and spray arcs; installing a rain sensor on the irrigation controller; and implementing a new irrigation schedule. With proper management, the new system will cut irrigation water use 20 to 30 percent.	730,000 gallons
Region 6 Laboratory in Houston, Texas	Revised the facility's water management plan in December 2011. In FY 2013, the facility plans to replace toilets with dual-flush models, install dual-flush retrofit kits on 1.6-gallon-per-flush (gpf) toilets, and install WaterSense® labeled showerheads and urinals.	142,000 gallons
ORD Laboratory in Ada, Oklahoma	Completed the installation of faucet aerators and WaterSense labeled showerheads in FY 2012. In FY 2013, EPA has already initiated projects to replace toilets with dual-flush models, install dual-flush handle retrofit kits on 1.6 gpf toilets, and install an air handler condensate recovery system.	1.6 million gallons

EISA Section 423 Implementation—Water Assessments

In FY 2012, EPA completed water assessments at three non-EISA-covered facilities (although these facilities are not covered under EISA, EPA has already completed water assessments at all EISA-covered facilities):

- Region 8 Laboratory in Golden, Colorado
- Region 10 Laboratory in Manchester, Washington
- National Exposure Research Laboratory and Radiation and Indoor Environments National Laboratory in Las Vegas, Nevada

In FY 2013 and beyond, EPA will continue to evaluate water-saving opportunities by conducting assessments at non-covered facilities, analyzing projects identified for these facilities for feasibility and cost effectiveness, and working with its facility managers to implement.

Nonpotable ILA Water

EO 13514 set requirements for reducing ILA water use by 2 percent per year through FY 2020, compared with an FY 2010 baseline, even if the water used for these purposes is nonpotable, fresh water. Based on the proposed ILA water guidance issued by CEQ on December 5, 2011, EPA calculated its FY 2010 interim baseline for Agency nonpotable water use to be 135,191,600 gallons. When final reporting guidance is issued by CEQ, EPA will confirm or revise its baseline accordingly.

As of FY 2012, six EPA facilities use nonpotable ILA water from sources such as lakes, creeks, and wells for purposes such as irrigation, agricultural research, and process cooling. These facilities include:

- MED Laboratory in Duluth, Minnesota
- ORD Laboratory in Athens, Georgia
- SESD Laboratory in Athens, Georgia
- Willamette Research Station in Corvallis, Oregon
- Main Building in RTP, North Carolina
- NERL in Chelmsford, Massachusetts

EPA estimates that these facilities used 7,007,631 gallons of nonpotable water for ILA use in FY 2012. This amount is 128,183,969 gallons or 94.8 percent lower than the interim FY 2010 baseline and 79,065,948 gallons or 87.5 percent lower than FY 2011, and it exceeds the ILA water reduction requirements set forth in EO 13514. EPA will continue assessing each facility's nonpotable water use through its EISA water assessments and will continue reducing the Agency's nonpotable water use where possible. EPA expects to meet the new guidelines for nonpotable water reduction requirements once they are issued.

SUSTAINABLE BUILDING DESIGN AND HIGH PERFORMANCE BUILDINGS

EPA occupies approximately 11 million square feet of space in more than 300 buildings nationwide. Such a large quantity of buildings has the potential to impact the Agency's energy, water, and other resource use, from design to construction to O&M. EPA works to promote energy and resource efficiency, waste reduction, pollution prevention, indoor air quality, and other environmental factors both during new construction and in existing buildings owned by the Agency or leased via GSA.

For new major lease acquisitions, EPA works with GSA to acquire high performance sustainable buildings that exceed the environmental performance of the facilities being replaced. EPA has developed a variety of strategies to help GSA meet these objectives. More details on these strategies are available below and in the Agency's SSPP.

Upgrading Existing Agency-Owned Buildings to Meet the *Guiding Principles*

9.8 Percent of EPA's Projected FY 2015 FRPP Inventory Meets the *Guiding Principles*

EO 13514 requires that 15 percent of an agency's FRPP inventory (by number of buildings) meet the *Guiding Principles* by FY 2015. EPA's calendar year 2012 FRPP inventory consists of approximately 4.4 million square feet of Agency-owned or directly leased space, clustered in 23 locations, and made up of 171 buildings. However, the EO 13514 requirement only applies to buildings that are projected to be in the 2015 FRPP inventory and are 5,000 square feet or larger. EPA has 51 buildings (73.1 percent of its FRPP, or approximately 3.2 million GSF) in its projected

2015 FRPP inventory that are subject to this requirement.⁸ GSA provides EPA with the remaining 6.9 million square feet of laboratory, office, and support space, either in GSA-owned facilities or in facilities leased via GSA from private owners.

As of the end of FY 2012, five buildings—or 9.8 percent—in EPA’s projected FY 2015 FRPP inventory met the *Guiding Principles*. This progress exceeds the federal agency goal of 9.0 percent set by OMB and is two-thirds of the way to meeting the FY 2015 requirement. EPA’s LLRS in Grosse Ile, Michigan, met the *Guiding Principles* in FY 2012.

EPA’s ESC in Fort Meade, Maryland, is on the cusp of meeting the *Guiding Principles*, pending completion of a lighting controls study currently underway at the facility. Once these projects are complete at ESC in early FY 2013, the number of EPA FRPP buildings meeting the *Guiding Principles* will rise to 11.8 percent.

In FY 2012, EPA began the certification process for the AED Laboratory in Narragansett, Rhode Island. The laboratory is currently in the middle of IRP Phase II, which is projected to reduce energy use at the laboratory by 2.5 billion Btu or 10 percent. All of the *Guiding Principles* metrics have been met, except for the energy use reduction requirement and commissioning, which relate primarily to the completion of IRP Phase II, and ASHRAE 55 and 62 evaluations of certain older sections of the building.

The *Guiding Principles* requirement for energy use reduction remains EPA’s most challenging and costly metric to meet, as EPA’s FRPP inventory is made up entirely of energy-intensive laboratories.

Acquiring New High Performance Sustainable Green Buildings

EPA uses several tools to acquire new space in existing, newly designed, or newly constructed buildings that meet its own environmental performance requirements, as well as the requirements of the *Guiding Principles*. EPA’s *Architectural and Engineering Guidelines* provide minimum requirements for the sustainable design and construction of all new Agency-owned facilities. EPA also maintains a *Best Practice (Environmental) Lease Provisions* document to collect and apply lessons learned and innovative environmental practices in buildings procured for EPA by GSA. EPA also uses programs such as ENERGY STAR, WaterSense, and GreenCheck to ensure its new facilities are sustainable, energy-efficient, and meet the *Guiding Principles*.

EPA often utilizes the USGBC’s LEED green building certification program as a tool for acquiring high performance green buildings and ensuring their continued performance. EPA has extensive experience with the LEED for New Construction, LEED for Core and Shell, and LEED for Commercial Interiors rating systems. Periodic recertification under the LEED for Existing Buildings: O&M rating system is also required throughout the term of the building’s rental when leasing from GSA.

Virtually all major new building construction projects initiated by EPA since 1997, whether EPA-owned, GSA-owned, or GSA-leased, have been certified under the LEED for New Construction

⁸ This accounts for EPA direct leases that are projected to be removed from the FRPP (i.e., become GSA leases) prior to 2015, as well as four warehouses that are no longer maintained and therefore are coded "N/A" with regards to sustainability.

rating system. As of FY 2012, EPA occupies 10 buildings certified Gold or Silver under the LEED for New Construction rating system. In addition, seven of EPA's leased office buildings have achieved LEED Platinum, Gold, or Silver certification under the LEED for Existing Buildings: O&M rating system.

In FY 2012, the Potomac Yard Two EPA Headquarters Building in Arlington, Virginia, was certified Platinum; the Southern California Field Office in Los Angeles, California, was certified Gold; and the Region 6 Office in Dallas, Texas, was certified Silver, all under the LEED for Existing Buildings: O&M rating system. Also, the Caribbean Environmental Protection Division (CEPD) in Guaynabo, Puerto Rico, received Gold certification under the LEED for Commercial Interiors rating system in early FY 2013. This project is the first in Puerto Rico to achieve Gold certification under the LEED for Commercial Interiors rating system and is currently the highest rated LEED for Commercial Interiors project in the Commonwealth.

As of FY 2012, approximately 18 percent (by GSF) of EPA's owned or leased buildings are certified either under EPA's own internal certification system for existing buildings that meet the *Guiding Principles*, the LEED for New Construction rating system, or the LEED for Existing Buildings: O&M rating system.

Looking ahead to FY 2013, EPA expects its new Region 7 Office in Lenexa, Kansas, will receive Gold certification under the LEED for New Construction rating system.

ENERGY STAR

Since 2003, EPA has required all large, newly leased buildings to have earned the ENERGY STAR prior to lease award or within 18 months for new construction. EPA now also requires all new leases for major office buildings to re-certify as an ENERGY STAR building every three years, where market conditions make it feasible. EPA's goal is for all its large offices, including regional offices and Headquarters buildings, to earn the ENERGY STAR, current within the last three years.

In 2012, three EPA Headquarters buildings in Washington, D.C., earned the ENERGY STAR:

- EPA East, West, and Connecting Wing
- Franklin Court Building
- 1310 L Street

These buildings join the three EPA Headquarters facilities that earned the ENERGY STAR prior to 2012:

- Ariel Rios EPA Headquarters Building in Washington, D.C. (2011)
- Potomac Yard One EPA Headquarters Building in Arlington, Virginia (2012)
- Potomac Yard Two EPA Headquarters Building in Arlington, Virginia (2011)

In addition, as of FY 2012, all EPA regional offices have earned the ENERGY STAR:

- Region 1 Office in Boston, Massachusetts (2011)

- Region 2 Office in New York, New York (2012)
- Region 3 Office in Philadelphia, Pennsylvania (2011)
- Region 4 Office in Atlanta, Georgia (2010)
- Region 5 Office in Chicago, Illinois (2012)
- Region 6 Office in Dallas, Texas (2012)
- Region 7 Office in Lenexa, Kansas (2011)
- Region 8 Office in Denver, Colorado (2008)
- Region 9 Office in San Francisco, California (2012)
- Region 10 Office in Seattle, Washington (2010)

Of these facilities, all but one earned the ENERGY STAR within the last three years.

Carbon-Neutral Facilities

EO 13514 requires that, beginning in 2020, all new federal buildings entering the planning process be designed to achieve net-zero energy status by 2030. Net-zero energy means the building produces as much energy as it uses over the course of a year. EPA plans to meet this requirement for all construction projects it initiates starting in 2020.

As a first step toward achieving net-zero energy facilities, EPA has achieved carbon neutrality for three of its facilities through significant energy use reductions and/or green power REC purchases:

- ORD Laboratory in Ada, Oklahoma
- Region 7 Office in Lenexa, Kansas
- GED Laboratory in Gulf Breeze, Florida

At the ORD Laboratory in Ada, Oklahoma, EPA installed a ground source heat pump (GSHP) system and VAV laboratory ventilation systems; this eliminated onsite fossil fuel use and cut energy use by more than 40 percent. EPA then procured green power RECs to cover the remaining electricity use. The other facilities are electricity only—no fossil fuels are combusted onsite for facility heating or cooling—and EPA purchases green power RECs to cover the facilities' electricity use.

Building Management Plan Guidelines

In its efforts to improve the environmental performance of EPA facilities so that they meet the *Guiding Principles*, EPA completed piloting of its own *Guiding Principles* certification process in FY 2012; the Building Management Plan Guidelines (BMPGs) are a significant part of this process. The BMPGs are an EPA-developed and comprehensive set of sustainable building management procedures and policies that represent best practices, minimum requirements, conformance assurance processes, and performance standards for a number of green building practices.

Over the past two years, EPA tested the BMPGs at three FRPP facilities: ESC in Fort Meade, Maryland; LLRS in Grosse Ile, Michigan; and the AED Laboratory in Narragansett, Rhode Island. These tests helped the Agency review and improve the BMPGs. EPA solicited feedback on the implementation process from these facilities and will continue this practice moving forward,

leveraging the “on-the-ground” experience of the facility managers and onsite contractors to efficiently turn policy into practice. Lessons learned have been and will be incorporated into the BMPGs as EPA works to certify additional FRPP facilities.

With three facilities having used and customized the BMPGs, EPA believes the BMPGs are an understandable, educational, and value-added tool that will improve the environmental operating performance of the Agency’s facilities. This approach represents an appropriate and efficient path toward helping EPA’s existing buildings meet the *Guiding Principles*.

GreenCheck

GreenCheck is a process EPA uses to formally identify environmental performance goals for each new EPA facility, significant renovation/construction project, and lease of EPA-occupied space, and ensure compliance with the multiple environmental performance standards for EPA facilities. The GreenCheck form covers all the facility-specific requirements of EPCRA 2005, EO 13423, EISA, the *Guiding Principles*, and EO 13514, as well as the Agency’s own facilities standards and policies as reflected in its *Best Practice (Environmental) Lease Provisions* and updated *Architecture and Engineering Guidelines*. EPA updates the GreenCheck checklist periodically to incorporate new requirements and address lessons learned from reviews.

All projects requiring funding in excess of \$85,000, affecting at least 5,000 GSF, or increasing impervious area by more than 5,000 GSF qualify for a full GreenCheck review. In FY 2012, EPA staff initially screened and performed mid-project updates on 40 major construction projects and lease actions through the GreenCheck process.

Other Sustainable Buildings Guidance

EPA is committed to improving the sustainability of all of its facilities, whether owned or leased. To this end, EPA has developed tools and guidance documents to help improve the performance of the buildings it owns and leases from GSA. The Agency continued to refine and improve these resources in FY 2012 as part of its ongoing green building efforts.

In FY 2012, EPA developed the *Guiding Principles* Targeted Facility Selection Tool⁹ to streamline the strategy for selecting facilities to meet the *Guiding Principles*. The tool incorporates information such as square footage, energy and water consumption data, date of last commissioning, and completed onsite projects to help determine facilities to target. EPA moved to this new Microsoft Excel tool to focus on functionality and produce faster and easier updates.

In addition, EPA revised its Sustainable Building Implementation Plan (SBIP) in October 2011. The SBIP outlines EPA’s plan for implementing federal sustainable building requirements. Although EPA was not required to submit an updated SBIP in FY 2012, the Agency continued to refine its SBIP so that the document can serve as an internal reference for the Agency’s long-term sustainability goals. More details on EPA’s sustainability strategy are available in the Agency’s SSPP.

⁹ The *Guiding Principles* Targeted Facility Selection Tool replaces EPA’s previous Strategy for Meeting the Guiding Principles report.

Designing for Reduced Fossil Fuel Generation

In accordance with EISA, new federal buildings or federal buildings undergoing major renovation must be designed to reduce fossil fuel-generated energy consumption by 65 percent by FY 2015 and meet at least 30 percent of hot water demand with solar hot water heating. While implementation guidance has not been issued in this area, EPA plans to install GSHPs at the WED Laboratory in Corvallis, Oregon, and the new Region 6 Laboratory in Houston, Texas. In addition to offsetting fossil fuel-generated energy consumption at these facilities, the GSHP projects will provide EPA with valuable lessons learned (e.g., economics/investments, climate ranges, hybrid versus full GSHP systems) that the Agency can apply to future GSHP projects at other facilities.

STORMWATER MANAGEMENT

Stormwater runoff in urban areas is one of the leading sources of water pollution in the United States. To mitigate the effects of stormwater runoff, the Agency implements green infrastructure/low impact development (LID) projects in connection with all new construction and major renovation projects. EPA also retrofits older facilities in connection with its efforts to transform its existing buildings into high performance, sustainable buildings, or when other opportunities present themselves.

In FY 2012, EPA developed a stormwater master plan at LLRS in Grosse Ile, Michigan, to identify potential LID strategies that could be implemented. The result of this study was three different phases of potential LID stormwater projects for the facility. EPA contracted for and completed Phase I (i.e., the installation of rain gutters and rain barrels to capture excess stormwater, with first-flush treatment capability) in FY 2012.

In addition, EPA worked with the facility managers at ESC in Fort Meade, Maryland, and LLRS in Grosse Ile, Michigan, to create facility-specific stormwater management plans that inventory the sites' stormwater infrastructure and define routine operations and maintenance procedures. These plans help the facilities understand how their often complex and unseen systems work and ensure that the onsite stormwater infrastructure is properly maintained, works effectively to decrease the risk of flooding, prevents stream erosion, protects water quality, and meets the requirements of the *Guiding Principles*.

In FY 2012, EPA worked with its Office of Water and GSA to increase the capabilities of the current cistern system at EPA West, which is part of the Federal Triangle Headquarters Complex in downtown Washington, D.C. The EPA West building currently houses six 1,000-gallon cisterns, which satisfy 80 percent of the facility's summertime irrigation requirements. The EPA West garage cisterns are designed to capture runoff from the approximately 10,000 square feet of roofing at the Federal Triangle Complex. The original project was completed in summer 2008. Once the controls are upgraded, the system will be able to pump previously captured rain water into the combined sewer prior to forecasted storms. This maximizes stormwater storage capacity to handle an impending storm and decreases stormwater flows and combined sewer overflow during actual storm events.

In September 2012, in connection with the consolidation of RTF/NHEERL into the Main Building at RTP, North Carolina, a design/build contract was awarded that requires augmentation of the existing stormwater management system.

EPA supports stormwater management and green infrastructure/LID projects at all of its facilities, whether owned or leased. On May 31, 2012, GSA held a dedication and ribbon-cutting ceremony for the new green roof installation at the Sam Nunn Atlanta Federal Center in Atlanta, Georgia, where the EPA Region 4 Office is housed and is the principle building tenant. The green roof installation covers two of the four buildings that comprise the Sam Nunn Atlanta Federal Center. Approximately 10,000 square feet of the roof surface is covered with a white “cool roof,” while the remaining 50,000 square feet is covered with a waterproof membrane and nearly 200,000 plants in a variety of species. These features are expected to decrease stormwater runoff by more than 600,000 gallons per year.

The combination of roofing systems provides a variety of additional benefits, such as reduced heating and cooling costs, less strain on the rooftop HVAC equipment, and reduced Scope 1 and 2 GHG emissions for GSA (Scope 3 GHG emissions for EPA). In addition, 80 percent of the existing roof material was recycled during construction, including the pavers, waterproofing membrane, and rigid insulation.

EPA’s stormwater management efforts will continue in FY 2013 in accordance with the requirements set forth in EO 13514, the *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects* under EISA Section 438, and the *Guiding Principles*.

RECYCLING AND POLLUTION PREVENTION

EPA Achieves a Solid Waste Diversion Rate of 63 Percent in FY 2012

Based on data submitted by EPA facilities, including Headquarters, regional offices, and regional laboratories, the Agency achieved a 63 percent waste diversion rate in FY 2012. EO 13514 requires federal agencies to meet a non-hazardous solid waste diversion rate of 50 percent by FY 2015. Through its recycling, reuse, donation, composting, and other waste reduction efforts, EPA has already exceeded this goal. As a result, the Agency set a more aggressive waste diversion goal of 55 percent. EPA surpassed this goal in FY 2012 and is on track to continue to exceed it again in the coming years.

Several EPA facilities significantly contributed to EPA’s non-hazardous solid waste diversion rate increase in FY 2012, including seven facilities that achieved a diversion rate greater than 70 percent:

- AED Laboratory in Narragansett, Rhode Island (91 percent)
- Region 9 Office in San Francisco (86 percent)
- NVFEL in Ann Arbor, Michigan (83 percent)
- Region 8 Office in Denver, Colorado (82 percent)
- Region 9 Laboratory in Richmond, California (77 percent)
- ESC in Fort Meade, Maryland (71 percent)

- Region 7 Office¹⁰ and Science and Technology Center in Kansas City, Kansas (71 percent)

EPA anticipates it will continue to increase its solid waste diversion rate in FY 2013 as a result of these and other projects.

In addition to its solid waste diversion efforts, EPA also took steps to reduce construction and demolition waste generated from projects at its facilities. For example, as part of the Vehicle Compliance Building Additions project at NVEEL in Ann Arbor, Michigan, EPA recycled more than five tons of steel; used approximately 169 tons of recycled asphalt; poured concrete containing approximately 65 percent fly ash; and saved approximately 4,200 cubic yards of displaced soil for future reuse. In addition, EPA saved rather than discarded extra construction materials; saved shipping containers, pallets, and dunnage for recycling or reuse; and educated the project staff about the availability of recycling containers for paper, plastic, and cardboard.

ON TRACK FOR THE FUTURE

EPA is continually working to reduce its GHG emissions, energy intensity, water conservation, solid waste, and other resource use, as well as incorporate sustainable design and operations into all of its facilities, and to be a model of sustainability for other federal agencies. In FY 2013, the Agency will continue to build on these efforts by focusing on GHG emissions reduction efforts; pursuing new energy efficiency projects and completing ongoing ones; and focusing on projects in areas such as green power, green buildings, advanced metering, water conservation, and waste diversion. EPA will continue to be a leader among federal agencies in the challenge to promote sustainability and reduce the environmental impact of its facilities and operations. For additional data on the Agency's FY 2012 environmental performance, see EPA's *FEMP Annual GHG and Sustainability Data Report*.

¹⁰ EPA vacated its Region 7 Office in Kansas City, Kansas, as of October 15, 2012. Therefore, the FY 2013 waste diversion rates for the Region 7 Office will be reported by the new facility in Lenexa, Kansas.

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**Appendix A:
Revision to FY 2008
Scope 1, 2, and 3 GHG Baselines**

**For Submittal With EPA's
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FEMP Energy and GHG Reporting Tool: Results Summary

FY 2008

Scope and Category	Total Quantity Emitted GHG Target Subject (MT CO2e)	Total Quantity Emitted GHG Target Excluded (MT CO2e)	Total Quantity Emitted International (MT CO2e)	Total Quantity Emitted (MT CO2e)	Total Quantity Emitted Biogenic CO2 (MT)
Scope 1: Stationary Combustion: EISA 2007 Goal Subject and Excluded Building Energy Consumption	22,553.7	0.0	0.0	22,553.7	0.0
Scope 1 Mobile Emissions: Vehicles and Equipment	3,075.4	0.0	0.0	3,075.4	0.0
Scope 1 Mobile Emissions: FAST	3,763.5	1,444.9	0.0	5,208.4	329.5
Scope 1 Fugitive Emissions: Fugitive Fluorinated Gases and Other Fugitive Emissions	2,025.2	0.0	0.0	2,025.2	
Scope 1 Fugitive Emissions: On-site Wastewater Treatment***	0.0			0.0	0.0
Scope 1 Fugitive Emissions: On-site Landfills and Municipal Solid Waste Facilities***	0.0			0.0	0.0
Scope 1: Industrial Process Emissions By Process	531.4	0.0	0.0	531.4	
Subtotal Scope 1	31,949.2	1,444.9	0.0	33,394.2	329.5
Scope 2: Purchased Electricity Consumption	73,402.6	0.0	0.0	73,402.6	0.0
Scope 2: Purchased Renewable Energy/Biomass Emissions	0.0			0.0	0.0
Scope 2 Indirect Emissions: Purchased Steam and Hot Water (Includes Transmission and Distribution Losses)	10,896.1	0.0	0.0	10,896.1	0.0
Scope 2 Indirect Emissions: Purchased Chilled Water (Includes Transmission and Distribution Losses)	13,362.0	0.0	0.0	13,362.0	0.0
Scope 2: Indirect Emissions: Purchased CHP Electricity, Steam & Hot Water	12,399.4	0.0	0.0	12,399.4	
Subtotal Scope 2	110,060.1	0.0	0.0	110,060.1	0.0
Scope 2: Reductions from Renewable Energy Use	0.0			0.0	
Subtotal Scope 1 & 2	142,009.3	1,444.9	0.0	143,454.3	329.5
Scope 3: Transmission and Distribution (T&D) Losses	4,835.1	0.0	0.0	4,835.1	0.0
Scope 3: Biomass Generated with No RECs	0.0	0.0		0.0	0.0
Scope 3: Federal Employee Business Air Travel**	17,391.5			17,391.5	
Scope 3: Federal Employee Business Ground Travel***	9,345.7			9,345.7	
Scope 3: Federal Employee Commuting***	37,550.2			37,550.2	
Scope 3: Contracted Wastewater Treatment***	86.0			86.0	55.0
Scope 3: Contracted Municipal Solid Waste Disposal***	1,917.8			1,917.8	606.3
Scope 3: Renewable Energy Generated with No RECs	0.0			0.0	
Subtotal Scope 3	71,126.3	0.0	0.0	71,126.3	661.3
Total	213,135.7	1,444.9	0.0	214,580.6	990.8

*Domestic Only

**GHG Target Subject Only

***GHG Target Subject Domestic Only

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Appendix B: Revision to FY 2003 Energy Intensity Baseline

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FY 2003 ENERGY DATA BASELINE WORKSHEET - EXISTING ON RECORD

Agency: EPA Prepared by: Evan Snyder
 Date: 1/18/2013 Phone: 202-564-0358

EXECUTIVE ORDER 13123 REPORTING CATEGORIES

1-1. Standard Buildings/Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:				0.0
Standard Buildings/Facilities (Thou. Gross Square Feet)			Btu/GSF:	#DIV/0!

1-2. Industrial, Laboratory, Research, and Other Energy-Intensive Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	133,707.1	\$7,844.1	456.2
Fuel Oil	Thou. Gal.	525.7	\$513.9	72.9
Natural Gas	Thou. Cubic Ft.	354,470.1	\$2,604.7	365.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:				1,443.0740
Energy-Intensive Facilities (Thou. Gross Square Feet)			Btu/GSF:	388,190

1-3. Exempt Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:				\$0.0
Exempt Facilities (Thou. Gross Square Feet)			Btu/GSF:	#DIV/0!

ENERGY POLICY ACT 2005 REPORTING CATEGORIES

EPACT Goal-Subject Buildings/Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	133,707.1	\$7,844.1	456.2
Fuel Oil	Thou. Gal.	525.7	\$513.9	72.9
Natural Gas	Thou. Cubic Ft.	354,470.1	\$2,604.7	365.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:				1,443.1
EPACT Goal Buildings/Facilities (Thou. Gross Square Feet)			Btu/GSF:	388,190

EPACT Excluded Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:				\$0.0
EPACT Excluded Facilities (Thou. Gross Square Feet)			Btu/GSF:	#DIV/0!

ALL FACILITIES COMBINED

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	133,707.1	\$7,844.1	456.2
Fuel Oil	Thou. Gal.	525.7	\$513.9	72.9
Natural Gas	Thou. Cubic Ft.	354,470.1	\$2,604.7	365.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:				1,443.1
All Facilities (Thou. Gross Square Feet)			Btu/GSF:	388,190

FY 2003 ENERGY DATA BASELINE WORKSHEET - REVISED BASELINE

Agency: EPA Prepared by: Evan Snyder
 Date: 1/18/2013 Phone: 202-564-0358

EXECUTIVE ORDER 13123 REPORTING CATEGORIES

1-1. Standard Buildings/Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:			\$0.0	0.0
Standard Buildings/Facilities (Thou. Gross Square Feet)		0.0	Btu/GSF:	#DIV/0!

1-2. Industrial, Laboratory, Research, and Other Energy-Intensive Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	134,800.5	\$7,844.1	459.9
Fuel Oil	Thou. Gal.	526.0	\$513.9	73.0
Natural Gas	Thou. Cubic Ft.	369,014.4	\$2,604.7	380.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:			\$16,764.8	1,461.8350
Energy-Intensive Facilities (Thou. Gross Square Feet)		3,718.4	Btu/GSF:	393,130

1-3. Exempt Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:			\$0.0	0.0
Exempt Facilities (Thou. Gross Square Feet)		0.0	Btu/GSF:	#DIV/0!

ENERGY POLICY ACT 2005 REPORTING CATEGORIES

EPACT Goal-Subject Buildings/Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	134,800.5	\$7,844.1	459.9
Fuel Oil	Thou. Gal.	526.0	\$513.9	73.0
Natural Gas	Thou. Cubic Ft.	369,014.4	\$2,604.7	380.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:			\$16,764.8	1,461.8
EPACT Goal Buildings/Facilities (Thou. Gross Square Feet)		3,718.4	Btu/GSF:	393,130

EPACT Excluded Facilities

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	0.0	\$0.0	0.0
Fuel Oil	Thou. Gal.	0.0	\$0.0	0.0
Natural Gas	Thou. Cubic Ft.	0.0	\$0.0	0.0
LPG/Propane	Thou. Gal.	0.0	\$0.0	0.0
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	0.0	\$0.0	0.0
Other	BBtu	0.0	\$0.0	0.0
Total Costs:			\$0.0	0.0
EPACT Excluded Facilities (Thou. Gross Square Feet)		0.0	Btu/GSF:	#DIV/0!

ALL FACILITIES COMBINED

Energy Type	Consumption Units	Annual Consumption	Annual Cost (Thou. \$)	Site-Delivered Btu (Billion)
Electricity	MWH	134,800.5	\$7,844.1	459.9
Fuel Oil	Thou. Gal.	526.0	\$513.9	73.0
Natural Gas	Thou. Cubic Ft.	369,014.4	\$2,604.7	380.5
LPG/Propane	Thou. Gal.	9.8	\$18.3	0.9
Coal	S. Ton	0.0	\$0.0	0.0
Purch. Steam	BBtu	13.1	\$526.1	13.1
Other	BBtu	534.5	\$5,257.8	534.5
Total Costs:			\$16,764.8	1,461.8
All Facilities (Thou. Gross Square Feet)		3,718.4	Btu/GSF:	393,130



Appendix C: List of Excluded Facilities

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APPENDIX C – LIST OF EXCLUDED FACILITIES

Table C-1. List of Excluded Facilities		
<i>Facility</i>	<i>Explanation</i>	<i>FY 2012 Energy Consumption</i>
Research Vessel, Mid-Continent Ecology Division (MED) Laboratory, Duluth, Minnesota	A research vessel based out of the MED Laboratory in Duluth, Minnesota, consumes energy when it is docked; this is known as “cold iron energy.” FEMP’s <i>Guidelines for Establishing Criteria for Excluding Buildings</i> , dated January 27, 2006, states that “Federal ships that consume ‘Cold Iron Energy’ (energy used to supply power and heat to ships docked in port),” are “assumed to already be excluded from the energy performance requirements of Section 543” of EPLA 2005. Therefore, EPA is reporting the energy consumed by this vessel in FY 2012 in the Energy Goal Excluded category of the <i>GHG and Sustainability Data Report</i> accompanying this narrative. The energy consumed by this vessel was, however, included in the Agency’s Scope 1 and 2 GHG emissions calculations per the EO 13514 <i>Federal Greenhouse Gas Accounting and Reporting Guidance</i> .	44,849 kWh

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Appendix D: EPA's FY 2012 EPC Act 2005 Goal Subject Building Inventory

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APPENDIX D – EPA’S FY 2012 EPACT 2005 GOAL SUBJECT BUILDING INVENTORY

Table D-1. EPA’s FY 2012 EPAct 2005 Goal Subject Building Inventory¹		
<i>Facility Name</i>	<i>Location</i>	<i>Site Energy Manager</i>
Robert S. Kerr Environmental Research Laboratory	Ada, Oklahoma	John Skender
National Vehicle and Fuel Emissions Laboratory	Ann Arbor, Michigan	Steven Dorer
National Exposure Research Laboratory	Athens, Georgia	Rick Pittman
Science and Ecosystem Support Division Laboratory	Athens, Georgia	Betty Kinney
New England Regional Laboratory	Chelmsford, Massachusetts	Michael Kenyon/ Robert Maxfield
Chapel Hill Laboratory	Chapel Hill, North Carolina	Greg Eades
Andrew W. Breidenbach Environmental Research Center	Cincinnati, Ohio	Rich Koch
Test and Evaluation Facility	Cincinnati, Ohio	Rich Koch
Center Hill Facility	Cincinnati, Ohio	Rich Koch
Child Development Center	Cincinnati, Ohio	Rich Koch
National Service Center for Environmental Publications Warehouse	Cincinnati, Ohio	Rich Koch
National Health and Environmental Effects Research Laboratory, Western Ecology Division	Corvallis, Oregon	Primo Knight
Willamette Research Station	Corvallis, Oregon	Primo Knight
National Health and Environmental Effects Research Laboratory, Mid-Continent Ecology Division	Duluth, Minnesota	Rod Booth
Region 2 Laboratory	Edison, New Jersey	Joseph Pernice
Response Engineering and Analytical Contract Trailers	Edison, New Jersey	Joseph Pernice /
Butler Building and Office of Research and Development Trailers	Edison, New Jersey	Joseph Pernice/ Carolyn Esposito
Environmental Science Center	Fort Meade, Maryland	Jeffrey Dodd
Region 8 Laboratory	Golden, Colorado	Craig Greenwell
Large Lakes Research Station	Grosse Ile, Michigan	Rod Booth
National Health and Environmental Effects Research Laboratory, Gulf Ecology Division	Gulf Breeze, Florida	Clay Peacher
Region 6 Environmental Laboratory	Houston, Texas	Stephen Reese
Kansas City Science and Technology Center	Kansas City, Kansas	John Begley

<i>Facility Name</i>	<i>Location</i>	<i>Site Energy Manager</i>
National Exposure Research Laboratory, Environmental Sciences Division	Las Vegas, Nevada	Robert Andrews
Region 10 Laboratory	Manchester, Washington	Robert Manos
National Air and Radiation Environmental Laboratory	Montgomery, Alabama	Mike Clark/ Jonathan Aplin
National Health and Environmental Effects Research Laboratory, Atlantic Ecology Division	Narragansett, Rhode Island	Russ Ahlgren
National Health and Environmental Effects Research Laboratory, Western Ecology Division	Newport, Oregon	Primo Knight
New Consolidated Facility	Research Triangle Park, North Carolina	Greg Eades
National Computer Center	Research Triangle Park, North Carolina	Greg Eades
National Health and Environmental Effects Research Laboratory	Research Triangle Park, North Carolina	Greg Eades
Page Road Facility	Research Triangle Park, North Carolina	Greg Eades
Ambient Air Innovative Research Site Facility	Research Triangle Park, North Carolina	Greg Eades
Burden's Creek/Jenkins Road Facility	Research Triangle Park, North Carolina	Greg Eades
First Environments Early Learning Center	Research Triangle Park, North Carolina	Greg Eades
Region 9 Laboratory	Richmond, California	Jennifer Mann

¹ EPA is required to report to DOE and OMB the energy use at facilities for which the Agency pays utility bills. Although EPA occupies other facilities, utility expenses for those facilities are paid by GSA.