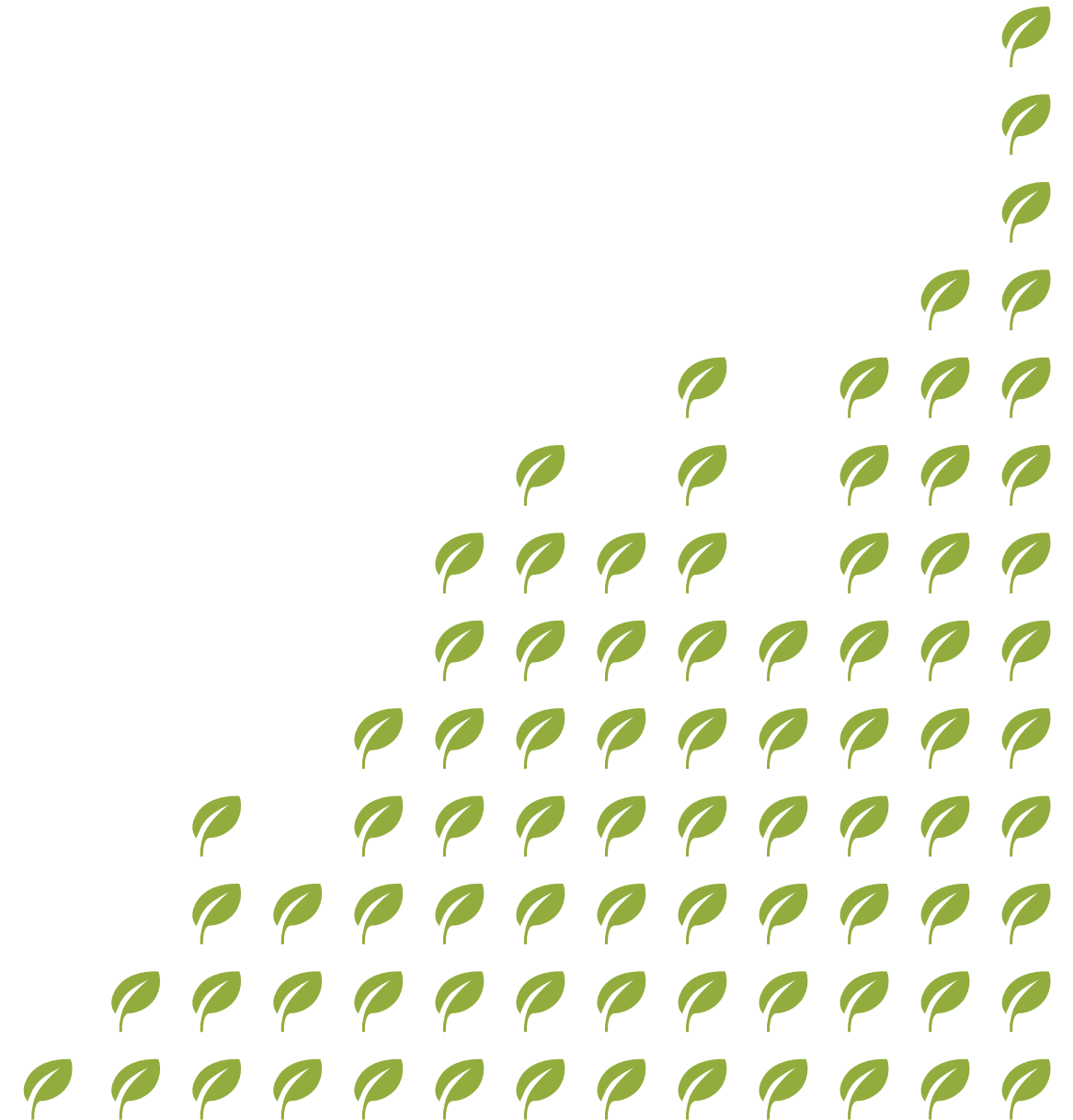


GOING GREEN & SAVING ENERGY

Annual Activity Status Report from the Green the Capitol Program and the Architect of the Capitol APRIL 2010



The U.S. House of Representatives is making its buildings, offices and operations more sustainable and energy efficient. This effort is proceeding on all fronts with numerous projects completed, in progress or in planning stages.

In only its second full year, the House-wide Green the Capitol program has evolved from a concept into a broad and systematic endeavor led by the Office of the Chief Administrative Officer (CAO) and the Office of the Architect of the Capitol (AOC).

The program has touched every aspect of House energy systems, planning, operations and technology. Most recently, it has focused on inter-office greening and behavioral change. So far, specially trained personnel have consulted with more than 220 Member and Committee Offices, reaching over 5,000 House staff on Capitol Hill and hundreds more at over 260 District Offices across the country.

The Green the Capitol program is being enacted by the AOC and the CAO, as well as several other legislative agencies. The AOC maintains, operates and develops the 16.5 million square feet of buildings and more than 450 acres of land throughout the Capitol complex. It is also responsible for preserving the historic facilities and all of their architectural and artistic elements.

The CAO oversees House administrative functions including human resources, information resources, payroll, finance, procurement and other business services. A team of Green the Capitol staff is responsible for day-to-day implementation and House-wide coordination of the program.

Our success is due to the leadership of Members, the AOC and the CAO, as well as the efforts of the House's 10,000 employees.

LEADING BY EXAMPLE

Green the Capitol has positioned the House to lead by example within the Federal government and across the nation when it comes to sustainable practices. The House is focused on making fundamental changes in the workplace environment by reducing energy and water use, diverting waste from landfills, reusing resources and maximizing recycling of paper, plastics and metals.

Conservation and sustainability have become routine and organic functions of House operations and staff job descriptions.

The House's efforts include consolidation and virtualization of computer servers, directing the universal use of post-consumer waste recyclable paper—including the printing of the Congressional Record—replacing incandescent lights with 13,000 compact fluorescent light bulbs, updating mechanical systems, installing meters, using alternative fuel vehicles, upgrading lighting and plumbing fixtures and increasing the use of double-sided printing and electronic faxes to reduce paper use.

In September, the AOC issued a policy statement demonstrating its commitment to resource conservation by reducing energy, water and materials use. The policy outlines conservation requirements for projects and operations through the use of sustainable building design and construction principles and products. For example, the AOC continues to install low-flow and motion-sensor fixtures throughout the Capitol complex as part of

larger renovation or modernization projects. Also, a pilot program on the Capitol grounds is using filters in several drain locations to analyze hydrocarbons in storm water.

These and other practices are well on their way to full implementation in all House Office Buildings. Posters and office consultations are designed to emphasize recycling and composting waste to assure it is diverted from landfills. Clearly, perceptions have adjusted and attitudes have shifted toward new business practices and workplace standards. In the House, green has become the new norm.

BEHAVIORAL CHANGE AND CULTURE CHANGE

The CAO and the AOC coordinated to develop a concerted, systematic and user-friendly outreach program for Member, Committee, Leadership and District Offices. Since April 2009, more than 100 specially trained House staff have been consulting with Member Offices on how to adopt and maintain more sustainable business practices. Greening teams have met with more than 220 Member, Committee and Leadership Offices representing Republicans and Democrats from nearly all 50 states and the U.S. territories.

As the greening outreach effort has spread exponentially, awareness has grown. So too have the individual and collective contributions of offices and staff to achieve energy savings, waste reduction, recycling and sustainability goals. The program



A 5-person Green the Capitol Team trained more than 100 House staff to consult with Member Offices on how to adopt and maintain more sustainable business practices. Those 100 House staff have worked with Member, Committee and Leadership Offices representing Republicans and Democrats from nearly all 50 states and the U.S. territories – impacting more than 5,000 staff.

objective is to complete office consultations for all 441 Member Offices, all Committee Offices, all Leadership Offices and all offices of the CAO, AOC and other legislative agencies by the end of the 111th Congress.

House staff are empowered to green their offices and track progress with a sophisticated and easy-to-use management tool called "My Green Office." This Web site visually highlights more than 50 greening actions, from installing compact fluorescent light bulbs and smart power strips to purchasing only ENERGY STAR equipment and green office supplies.

The actions are broken down according to ease of completion and greatest savings. "Core Actions" are minimal, relatively easy actions. "Stretch Actions" are more ambitious. "Already Green Actions" represent initiatives, such as installing solar shades and low-VOC (volatile organic compound) carpets, that are completed or underway House-wide.

Greening teams keep in touch with a Member-designated staff person at every office they visit. These "Green Office Representatives" educate and encourage their colleagues to take greening actions. They also chart progress on the My Green Office Intranet site and update administrative Office Coordinators on their offices' participation in the program.

Perhaps more important than the resulting operational changes, these greening actions represent behavioral shifts—new ways of thinking and working.

In June 2009, greening outreach expanded beyond the House's walls to Members' District Offices. Since then, greening consultants have worked with more than 260 District Offices representing more than 125 Members of Congress. The goal is to conduct at least one consultation in one or more District Offices in each Congressional District before the end of the 111th Congress. Consultations are done either onsite, at centralized workshops, by video or at events in Washington for District Office staffers.

Staff in more than 900 District Offices across the country now have access to a specially tailored version of My Green Office. The site accounts for the unique circumstances and challenges of those offices, including whether they are in commercial or government-operated federal buildings.

ENERGY REDUCTION PROJECTS AND COMPUTER POWER MANAGEMENT

House staff need to look no further than their own computer screens for signs of meaningful green progress.

A House-wide effort to consolidate Member Office computer servers has dramatically altered the House's main data center. Whereas the center once had more than 300 whirring servers using 500,000 watts of energy, now 30 high-capacity servers demand only 125,000 watts. Until recently, all Member Offices ran at least one individual 400-watt server, now up to 40 offices can consolidate their servers on one 800-watt super server. By the close of 2009, more than 150 offices had joined the virtual server system and another 200 Congressional offices were waiting to do so.

So far, the combined energy savings have significantly reduced the House's power bill. At full capacity, these super servers, part of a system called a blade frame, could reduce the House's server computing energy bill by more than 80 percent and realize significant savings in maintenance costs annually.

While few House staff will see the data center's blade frame, many will be surrounded by signs of greening progress. Some are impossible to overlook, while others are more subtle. For example, the House has installed nearly 13,000 energy-saving compact fluorescent light bulbs (CFLs) throughout the House complex, saving more than 1.1 million kilowatt hours (kWh) annually. Each CFL accounts for \$12.50 in annual energy savings and pays for itself within a few months.

Aggressive Carbon & Energy Reduction Goals

House greening operations have their foundation in a set of unwavering commitments to manage operations and practices in the most environmentally responsible manner. This means conserving energy while minimizing carbon emissions and waste.

Specifically, under the Green the Capitol program, the House seeks to reduce its energy consumption by 50 percent over a 10-year period through 2017. The House also intends to continue aggressively reducing or mitigating its carbon footprint to serve as a model.

This past year, the House made great strides toward its greening goals through a number of initiatives and programs. Efforts to consolidate servers, convert to smart power strips, install lighting controls, update mechanical equipment and upgrade HVAC systems will save energy while contributing to a further reduction of carbon emissions in the vicinity of the House campus.

Also, like the now-ubiquitous CFLs, energy-saving power strips have become a familiar part of the House office landscape. Called Smart Strips, the outlet devices shut down peripherals when a computer goes into sleep mode. So far, the House has installed more than 3,200 Smart Strips, saving 525,000 kWh per year.

Less visible are computer power management settings. Calibrated to reduce energy consumption when a computer is not in use, these settings are now par for the course on hundreds of computers throughout the House; saving thousands of dollars in energy costs.

Smart Strips and power management settings are automatically installed in the offices of all incoming freshmen Members. It's yet another way of making green the new norm.

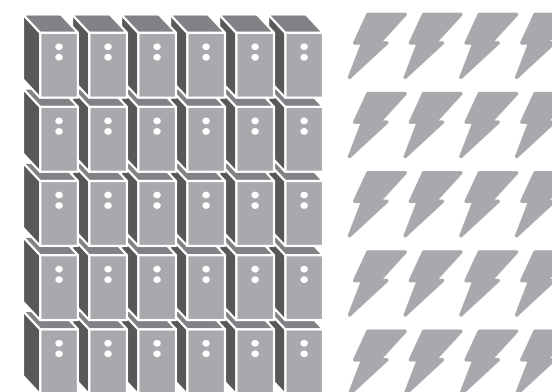
Additionally, the House has updated 53 vending machines to be ENERGY STAR-compliant, saving more than 135,000 kWh annually.

While these efforts have reduced the House of Representatives' energy use, more needs to be done to meet the aggressive goals. Therefore, other "behind the scenes" efforts are underway.

For example, in July the AOC entered into a public-private partnership for an Energy

Savings Performance Contract (ESPC) in House Office Buildings. The project includes nearly \$34 million in facility infrastructure upgrades in the Rayburn, Longworth, Cannon and Ford House Office Buildings, as well as the House Page Dormitory. Highlights of this project include:

- Upgrading nearly 33,000 lighting fixtures in all House buildings and energy-efficient, state-of-the-art lighting controls in selected areas for daylight harvesting and dimming;
- Upgrading heating, ventilation and air conditioning (HVAC) controls, control strategies and equipment customized for each House building, incorporating enhanced space condition feedback and building occupancy schedules;
- Installing new low-flow restroom fixtures, faucets and showerheads in all House buildings, as well as a condensate harvesting system for the



 = 10 servers  = 25,000 watts

Previously, the center had more than 300 servers using 500,000 watts of energy. Now 30 high-capacity servers demand only 125,000 watts.

Center Court fountain in the Rayburn House Office Building and green roof gardens in the central courtyard of the Cannon House Office Building; and

- Replacing steam traps in the Rayburn, Longworth and Ford House Office Buildings.

After implementation of all energy conservation measures over the 30-month construction period, the House Office Buildings are estimated to realize:

- A 23 percent reduction in total energy consumption;
- A 32 percent reduction in total water consumption; and
- Approximately \$3.3 million in annual energy savings.

The associated reductions in carbon dioxide and other emissions related to the projected energy savings are equivalent to removing nearly 1,700 cars from the road or planting more than 2,600 acres of trees.



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*After the 30 month construction period.

In December 2009, the AOC entered into a second ESPC contract; this one for the U.S. Capitol Building. This project includes nearly \$17 million in facility infrastructure upgrades for the entire Capitol Building. For example:

- Upgrading existing light fixtures with high-efficiency lamps, ballasts and reflectors as well as new replacement fixtures;
- A comprehensive Building Automation System (BAS) modernization, including the upgrade of existing pneumatic and electric controls for HVAC systems with direct digital control. These improvements will reduce energy consumption and improve temperature and humidity control;
- Replacement of existing electrical transformers with high-efficiency transformers; and
- A comprehensive audit and repair effort to restore steam trap performance.

After implementation of all energy conservation measures over the 27-month construction period, the Capitol Building is estimated to realize:

- A 38 percent reduction in total energy consumption; and
- Approximately \$2.2 million in annual energy savings.

For the purposes of the Green the Capitol program, only the House side of the Capitol and Capitol Visitor Center will be included in the annual energy-reduction goals.

The Night and Weekend Lighting Management Policy is another behind-the-scenes initiative that has proven effective.

Energy Savings

Over the past year, a subtle change has been made, which most likely went unnoticed. Thermostats were set higher at night in the House Office Buildings during the summer months to reduce the amount of air conditioning used in unoccupied offices, and set lower during the winter months to reduce heating needs.

In addition, new, energy-efficient equipment is being installed as various building systems are upgraded or replaced including elevators, escalators, heating and cooling systems and steam traps.

A notable change occurred at the Capitol Power Plant in February 2009. The AOC began operating the plant using natural gas as its primary fuel source.

As part of the long-term planning process for the plant, upgrades have been made to systems to increase reliability and efficiency, and other options such as bio-based fuels to further increase energy efficiencies at the plant are being explored.

In addition to the changes made at the Capitol Power Plant, 120 million kWh of clean, renewable wind-generated electricity were purchased for the Capitol complex in 2009.

Turning off lights in vacant rooms is a simple way to save energy. Therefore, the lighting management policy helps to ensure office lights in House Office Buildings are turned off after cleaning crews have finished their work in the evenings. In addition, lights in hallways and public areas are turned off at night, on weekends and during other off-hour times (except for those necessary for safety or emergency purposes).

In conjunction with the policy, occupancy sensors are being installed in House offices and bi-level light fixtures with sensors are being installed in stairwells in the Rayburn and Ford House Office Buildings. The fixtures dim when stairwells are unoccupied, but return to full illumination when someone enters. In August, an occupancy-based lighting control system was installed in the Longworth cafeteria, which

allows occupancy lighting control in the serving, seating and 24-hour vending areas by reducing lighting levels after normal business hours.

To better track chilled water and steam consumption used to heat and cool the Capitol complex, more than 100 meters were installed in the House and Capitol Buildings, and the Capitol Power Plant. The

meters collect and store energy usage data, which will then be analyzed to help manage energy use within the buildings. The meters measure electrical, steam, chilled water and domestic water use on a building-by-building basis.

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In September, the American Lung Association of the District of Columbia (ALADC) commended the AOC for its use of B20 blend biodiesel fuel in its shuttle buses that service Capitol Hill. The ALADC's Chief Executive Officer thanked the AOC for its leadership in switching to biodiesel noting, "The ALADC

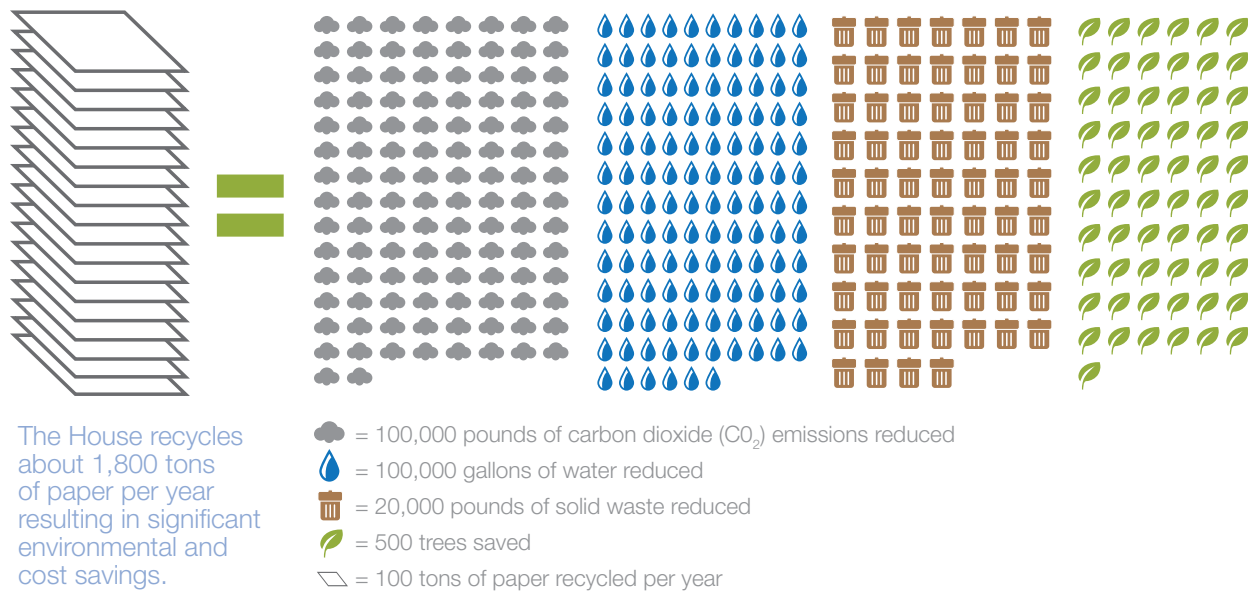
TRANSPORTATION

House staff are encouraged and empowered to consider not only the energy they use at work, but the energy they use to get to work. A car-sharing program and public transit benefits have proven popular. Nearly 2,500 staffers participate in the transit benefits program alone. Nearly 35 percent of AOC employees use public transportation to get to work.

A hybrid cargo truck recently joined a fleet that includes electric and alternative fuel vehicles. The AOC is updating its 2006 Alternative Fuel Policy so, in addition to providing E-85 fuel to official government vehicles across the Capitol complex, the agency requires the purchase or leasing of alternate fuel vehicles when replacing aging vehicles in its fleet. To date, there are approximately 30 hybrid and electric vehicles in the CAO and AOC's combined fleets.

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RECYCLING AND WASTE REDUCTION

When it comes to waste, a three-word mantra is increasingly echoing throughout the House: reduce, reuse, recycle.

As House staff have adapted to new ways of using and reusing paper, consumption has shrunk and savings have grown.

Paperless electronic faxing, double-sided printing and switching paper publications to online formats have saved a combined total of nearly 265 tons of paper and \$360,000 to date. Just eliminating cover sheets from mail deliveries has saved more than three tons of paper annually.

Of the paper that is used, the House recycles about 1,800 tons of it per year. According to the Environmental Protection Agency, recycling one ton of paper saves 17 mature trees, 3.3 cubic yards of landfill space, 7,000 gallons of water, 380 gallons of oil, 4,100 kilowatt hours of energy and 60 pounds of air pollutants.

The House Office Supply Store now provides only 100-percent post-consumer recycled content paper. The My Green Office Web site encourages staff to buy recycled-content paper for all paper needs, including business cards and executive

letterhead. This year, the Clerk of the House and the Government Printing Office switched both official Member stationery and the Congressional Record to 100 percent post-consumer recycled content paper.

In 2009, the use of recycled paper across the House campus equated the reduction of more than 760,000 pounds of carbon dioxide (CO₂) emissions, almost 3.5 million gallons of water, more than 385,000 pounds of solid waste and the saving of more than 8,400 trees.

The plethora of old and outdated IT devices present the House with additional opportunities to reuse and recycle. E-waste—computers, Blackberries, cell phones and the like – also are recycled.

The AOC recycles 100 percent of its e-waste in three basic ways: donation, reuse, or resale. Any equipment that is not donated or reused is recycled by a commercial recycling company. Typically the equipment is either reused or broken down and its components are repurposed.

The materials collected in the bins located in the House Office Buildings are sorted by the AOC and most items are sent to recycling centers. Batteries are sent to vendors specializing in their recharging or disposal. CD, DVD and jewel cases are sent to a plastics recycling center. The CAO also recycles Blackberries.

INTERIOR GREEN DESIGN

In the past few months, the House has significantly greened its furniture operations, saving hundreds of thousands of dollars in replacement costs and sparing landfills thousands of pounds of waste. The House's Assets, Furnishings and Logistics department (AFL) now recycles a range of materials from sawdust and wood scraps to carpets and drapes. It refurbishes hundreds of chairs and contracts out the cleaning of dozens of refrigerators that would have been discarded in the past.

Among the AFL's initiatives are the use of only biodegradable, chrome-free leather to recover furniture, water-based lacquers and non-toxic cleaning substances.

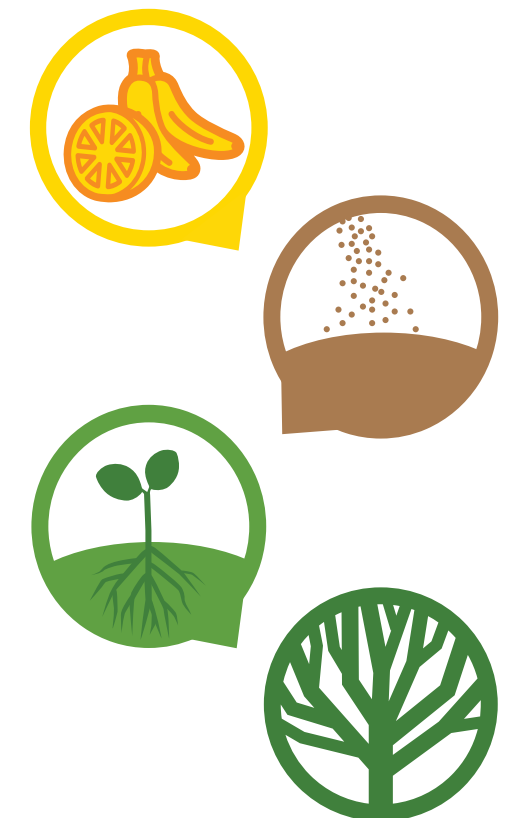
Instead of sending out almost all non-Member office furniture for refurbishing as it once did, AFL staff now do light touch-up work in house. They clean and buff chairs and desks, using only non-flammable, non-toxic solvents. This not only avoids extra trips to external vendors, but ensures furniture returned to the warehouse is in deliverable condition.

Members and staff literally sit on the AFL's green work. In March 2009, AFL craftsmen began refurbishing upholstered barrel chairs—the most requested piece of furniture in the House—instead of replacing worn chairs as before.

SUSTAINABLE DINING = GREENER GARDENS

Totally revamped House cafeterias have emerged as models of sustainability for other Federal agencies. Styrofoam and plastic food containers have been eliminated, and compostable waste is now funneled through a pulper and, ultimately, to an off-site composting facility.

As House staff and visitors become increasingly acclimated toward placing compostable materials in the correct receptacles located around the House campus, the amount of waste diverted from landfills will continue to grow.



Food waste, garden clippings and other green waste are being repurposed as compost for flower beds and to sustain other plantings throughout the Capitol complex. To date, more than 650 tons of compost has been diverted to the composting site and converted to useable topsoil within 90 days.

This compost was used extensively for a comprehensive landscape renovation at the Ford House Office Building. Four truckloads—or approximately 40 cubic yards of composted material—were used, exemplifying a “cradle-to-cradle” waste management approach.

The traditional lighting of the Capitol Christmas Tree brought 2009 to an appropriate close because, for the fifth year in a row, LED lights were used on the tree. And, to complete the circle, when the tree was removed, it was composted and will be returned to be used in flower beds throughout the Capitol Grounds.

CONCLUSION

As the Speaker of the House has noted, we should be leaders in the national effort to conserve energy. We will continue to do our part to make this goal a reality.

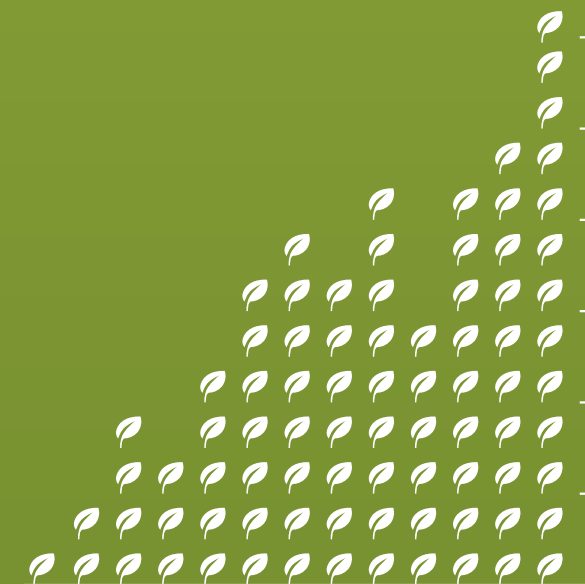
We are investing in renewable energy resources such as wind, recycling and repurposing materials, upgrading computer components, building systems and fixtures, and implementing new policies that encourage sustainable business practices.

Saving energy and resources is a team effort. You can help us make a difference. The choices each of us makes every day can help save energy, conserve natural resources and improve the environment.

Our individual actions can add up to a tremendous collective effort to save energy. We all can contribute by turning off office lights, computers, and copiers at the end of the day, and recycling paper and other materials.

Our efforts are paying off. Together we've reduced energy consumption, cut emissions and saved money throughout the House office complex.

There is still more to do. With your help, we can meet our goals through sustainable business practices.



ON THE COVER

Each leaf represents 100 trees (8,400 in total) that were saved through the sale of recycled content paper at the House campus in 2009.