# NeighborWorks®
## AMERICA



# GREENING YOUR NON-PROFIT FROM THE INSIDE OUT:

A NeighborWorks® Guide for
Community Development Organizations

## STRATEGIC SUSTAINABILITY CONSULTING

(Cover Photo) Recently installed solar panels on the roof at the National Council on Agricultural Life & Labor Research Fund, Inc. (NCALL) in Dover, Deleware.

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# Letter from the CEO

In 2008, NeighborWorks America made a formal commitment to "go green". A key component of that initiative is to support our nationwide network of community development organizations in bringing green tools, building techniques, and healthy environmental impact to urban, suburban, and rural communities across America.

Over the last year we've made great strides, expanding our Green Course curriculum that provides education and skills training in healthy homes and green construction, and launching a Green Certificate program to train practitioners in successful strategies for green building and sustainable design. With the support of The Home Depot Foundation, NeighborWorks made more than $1.7 million in grants to support the NeighborWorks network in "green" activities including new construction, rehabilitation/renovation, and multifamily energy efficiency.

A portion of that grant money also went to conducting Green Audits at twenty NeighborWorks organizations across the country. Working with the sustainability consultancy that helped us measure our own carbon footprint, these Green Audits provided each organization with a snapshot of their current environmental impacts, annual carbon footprint, and recommendations for going green.

This guide builds on the observations gathered during those twenty-two Green Audits of NeighborWorks organizations. Its goal is to provide community development organizations with tools and strategies to go green. From understanding how to measure your organization's environmental impacts to choosing quick and easy ways to improve your office practices, we hope that this guide can be a source of inspiration. We've also included case studies from current NeighborWorks organizations, so that you can see how organizations like yours are incorporating green elements into their business operations.

Whether you're ready to join us in the ambitious goal to reduce our carbon footprint by 10% in three years, or just looking for a few simple ways to be more eco-friendly at work, this guide is a great place to start. Read it all the way through, or sample a few pages as needed. Just be prepared—once you start the process, the benefits of going green become hard to ignore!

Kenneth D. Wade
CHIEF EXECUTIVE OFFICER

# HOW TO READ THIS GUIDE

This handbook was designed to provide community development organizations with an easy-to-use resource for taking the first steps towards "going green".

It begins with a general introduction to the topic of environmental sustainability. Why is environmental responsibility important to my organization's bottom line? What are our key impacts? What does our carbon footprint look like? Where should we begin? These questions are addressed from pages 3 to 19.

Once you're ready to dive into specific green action items, pages 20 to 79 will get you started. Divided into eleven "green" topics ranging from energy efficiency to customer communication, each section provides a wealth of information. Statistics, case studies, recommendations, and other resources will help you to understand the environmental impacts of each topic and how to go about minimizing that impact in a simple, cost-effective way. Because there is no "one size fits all" solution to going green, we've included website links to some of the best organizations working on the issue—where you can find a solution tailored to fit your circumstances.

These materials are organized so that you can quickly find the information you need. **Blue** areas are case studies, tips are found in **orange**, **tan** boxes are external references, and sample ideas are marked in **green**.

*Have questions?* You can always contact us at TDeyo@nw.org. While we won't always have the answer you're looking for, we can usually point you in the right direction.

## NeighborWorks® America Healthy, Sustainable Communities Initiative

### MISSION

NeighborWorks commits to being a leader with its network in employing and promoting equitable, green and sustainable practices for the long-term benefit of the environment so that people can live and work in healthy, ecologically friendly and affordable places.

### GOALS

- Reduce our carbon footprint by 10 percent in the next three years by reducing waste, correcting inefficiencies and leveraging resources.

- Deliver sustainability benefits to 100,000 low- to moderate-income households by 2011 through counseling; production that delivers healthier, more energy efficient homes; and improvements that conserve natural resources.

- Advance the community development industry dialogue on how to deliver sustainable community outcomes and use our Community Building and Organizing platform to engage at least 50 local communities across the country on how to be greener communities.

- To provide the highest order training in green, healthy, sustainable practices to the community development industry.

### OBJECTIVES

- To achieve noticeable reductions in the ecological footprint for the operations of NeighborWorks and its network organizations

- To create tools and measures to advance greening of organizations and services

- To elevate the industry understanding of green and increase green practices undertaken by the industry

- To achieve noticeable reduction in the environmental impact of existing and new buildings, such as lower greenhouse gas emissions

- To motivate communities to become greener, healthier places for people to live

# WHY GO GREEN?

Being environmentally responsible gives many people a warm and fuzzy feeling—and when approached strategically, it can also be good for your bottom line. Below are 7 reasons that your organization should consider going green.

## 1. Reduce Your Operating Costs

By pursuing a strategy of eco-efficiency, your organization can reduce costs related to utilities, waste disposal, and office purchasing. There are a wide variety of no-cost and low-cost actions you can take to start reducing your electricity consumption, waste generation, and paper use. Higher cost items—like replacing windows and doors—will take a more serious investment, but will pay for themselves in a few years, reduce your environmental impact, and create a more comfortable working environment. Reducing costs is a great strategy for increasing profits that can be devoted to the programs you run.

*Example: Power management software for your IT systems can reduce energy costs $20 - $60 per computer per year. For many organizations, this can mean a 5 - 15% reduction in overall, organization-wide energy consumption.*

## 2. Provide a Healthier Work Environment

It has been estimated that most Americans spend about 90% of their time indoors, often in synthetic environments filled with chemicals and poor lighting that compromise their health. Creating an eco-friendly office that eliminates these toxic materials will make your employees happier and healthier. That's good for productivity, and good for morale.

*Example: Many office materials contain toxins. The glues used to hold together pressed wood furniture and building materials, adhere laminated surfaces to furniture and keep floors and carpets in place often contain toxic chemicals that can leach into the air over time. The toxins emitted from paint, carpets, furniture, and plastics through "offgassing" can create a variety of health problems in anyone exposed to them. The consequences of exposure include asthma, allergies, and nervous system disorders—not to mention headaches and staff-wide illnesses commonly referred to as "sick building syndrome".*

## 3. Attract and Retain the Best Employees

People want to work for an organization that is in accordance with their own values and beliefs. Employees are not just worried about promotion and salary any more. As a community development organization, it's likely that your current staff already has a high level of awareness and enthusiasm for "green" things.

*Example: Graduates from top MBA programs place corporate social responsibility high on their list of considerations when seeking employment, so much so that they will accept lower salaries to work for an employer whose values are in line with their own, according to a recent survey conducted by a Stanford Graduate School of Business researcher. Need more proof? Doubletree Hotels' Green Program has been credited with reducing annual turnover by half. It has helped create "a sense of purpose and responsibility to sustainability ... in our employees."*

## 4. Build Integrity

As a mission-driven organization, you already operate on principles beyond the profit motive. At least in some measure, your goal is to make the world a better place—and so it is important that your office practices reflect that larger sense of duty. At the end of the day, it's just the right thing to do.

*Example: A 2007 Adecco survey found that about half of employed adults (52%) think their organization should do more to be environmentally friendly.*

## 5. Access New Capital

Companies that are committed to "going green" often have access to capital that would not otherwise be available. Private equity investments are flowing towards environmentally-friendly projects (especially in the construction sector), and there are an increasing number of federal, state, and local grants available for energy efficiency projects. Banks and other lenders may also offer special financing rates on green investments.

*Example: The Database of State Incentives for Renewables and Energy (www.dsireusa.org) lists dozens of federal and state incentives for "going green" including grants, tax exemptions for state and sales tax, loans and rebates.*

## 6. Plan For the Future

Even if "going green" isn't a burning priority in your organization today, all evidence points to it becoming increasingly important in the future. Climate change, fresh water availability, air pollution, toxic chemical exposure—these are problems that every organization will face, especially as governments begin to issue stricter rules about environmental issues. Even small non-profit organizations will find themselves affected—for example, when incandescent light bulbs are banned (as South Carolina proposed to do).

*Example: Energy sales are expected to grow 50 percent worldwide by 2030. By reducing the amount of power required to operate your business, you'll mitigate risk from factors well outside of your control.*

## 7. People Expect It and Respect It

People care about your organization's impacts on the nvironment. Whether it's your employees, customers, donors, local government, or your local communities—your stakeholders expect you to operate in an environmentally sensitive manner. Environmental responsibility is no longer the sole domain of NGO's like the Sierra Club and World Wildlife Fund; it's a duty that we all must embrace.

*Example: The 2007 ImagePower Green Brands Survey indicated a "shift in the U.S.'s collective consciousness — green is no longer an issue marginalized to fanatical environmentalists; nearly all Americans display green attitudes and behaviors versus a year ago."*

# GETTING STARTED WITH YOUR GREEN PLAN

If you're ready to make a commitment to "going green", congratulations! You are joining the ranks of a growing number of companies, non-profits, and communities who have decided to make environmental sustainability a key

Now the real work begins.

Remember that environmental sustainability is a long-term journey, and it's more like a marathon than a sprint.

Like running a marathon, you need to start slow, build up momentum, set smaller milestones, and celebrate your progress. Most of all, you need a plan—a strategy from getting here to there. Like all strategic initiatives, a green plan should be undertaken methodically, with clear direction and goals. The following section outlines a process for creating such a plan, including these five steps:

1. Measure your impacts
2. Survey your employees
3. Determine your priorities
4. Create an action plan
5. Repeat!

By following these steps, you can create a green plan that is ambitious but also realistic—a plan that is cost-conscious but also designed for maximum impact. Most important of all, you will design a plan that incorporates employee enthusiasm to actually transform the fabric of your organizational culture into a larger sense of mission and purpose.

*Most of all,* you need a plan—a strategy for getting from here to there.

## Step One: Measure Your Impacts

There are literally thousands of things you can do to make your organization a greener, more environmentally friendly place. But with a limited amount of time and money, how do you decide what initiatives are the most important? How do you make sure that you'll see progress after a few months— that you'll be able to justify the effort of everyone involved?

The key is to measure your environmental impacts first, before you begin any green initiatives. That way, you can ensure that your attention is focused on the most important issues. In a nutshell, you make sure that you're getting the most "bang for your buck".

There are several ways to go about measuring your impacts. As a first step, try our quick self-assessment (on page 7) to find out how your organization stacks up in major environmental impact categories like utilities, commuting, business travel, and paper use. Once you get a sense of the magnitude of your impacts, you'll know where to focus your efforts. (For example, if you find your electricity use is three times as high as the national average, you might consider energy efficiency measures like occupancy sensors and power management software for your computers—or even replacing old doors and windows to reduce heating and cooling costs.)

*Note: if you don't have the information needed to complete the self-assessment, don't worry! There is a saying in the sustainability industry: what gets measured gets managed. And now that you know what needs to get measured, so you're one step ahead of where you started. While you examine better ways of data collection, ask your employees to estimate things like their commuting distances, their local business travel, and their annual air miles. It won't be as accurate as a travel log, but it will give you enough to get started.*

For a more focused look at key environmental impacts, check out the chapters at the end of this handbook. Each chapter provides issue-specific ideas and resources for measuring your activities. For example, the energy efficiency chapter on page 25 points out that your local utility will often offer a free or low-cost energy audit of your building.

For a more thorough green assessment, consider hiring a sustainability consultant. Not only will a good sustainability consultant know what details to include, they will also know how to estimate and extrapolate for missing data, facilitate employee workshops, and help you set goals against the results of your green audit.

## Thinking about hiring a sustainability consultant?

There are a number of sustainability consultancies across the US – and each has a slightly different approach to helping organizations go green. Here are eight questions to ask a prospective consultant;

1. *Have you worked with organizations like ours before? (size, industry, geographic region, etc.)*

2. *What does your green assessment process include? (onsite visits, employee training, carbon footprint, policy reviews, technical energy audit, etc.)*

3. *How much will we be involved vs. you doing the work for us?*

4. *What will be the deliverable and how will I be able to use the information?*

5. *How long will it take?*

6. *How much will it cost?*

7. *What follow up support do you offer after the audit is complete?*

8. *Do you have references I can contact?*

# A Green Self Assessment

| DATA AND METRICS | NATIONAL AVERAGE | YOUR RESULTS |
| --- | --- | --- |
| *Utilities* | | |
| What is your average monthly electricity use? | 26.3 KwH per employee | |
| What is your average monthly natural gas use? | 26.9 therms per employee | |
| *Commuting* | | |
| What percentage of employees commutes by car? | 86% | |
| How far is the average 1-way commute by car? | 12.1 miles | |
| What percentage of employees telecommutes at least one day a month? | 18% | |
| *Local Business Travel* | | |
| How many miles does the average employee drive for business purposes (excluding commuting) each month? | 127 miles* | |
| How many miles does the average employee fly each year? | 1,357 miles | |
| *Paper Use* | | |
| How many reams of paper do you use each month? | 2 reams per employee | |
| *Policies and Practices* | *Yes* | *No* |
| Which of the following do you have in place? | | |
| Eco-purchasing policy | | |
| Energy efficiency initiatives | | |
| Incentives for commuting alternatives | | |
| Telecommuting program | | |
| Green travel policy | | |
| Recycling program | | |
| Regular communication with employees about "going green" | | |

*\* There is no national average data for local business travel, so we've used the average from 20 NW organization audits.*

# All About Your Carbon Footprint

### What is a carbon footprint?

A carbon footprint is the total set of GHG (greenhouse gas) emissions caused directly and indirectly by an organization. GHG emissions contribute to global warming and climate change, so you should strive to reduce your organization's carbon footprint as far as possible to minimize negative environmental impacts.

### How is a carbon footprint measured?

A carbon footprint is calculated by measuring GHG emissions related to each of your office's activities, and then assigning a carbon value to each (for example, x miles driven = y pounds of GHG emissions). These emissions, collectively measured in CO2 equivalents, or Co2-e, are then tallied to get an annual carbon footprint.

### What does a carbon footprint tell me?

First and foremost, a carbon footprint will tell you the amount of GHG emissions your organization is responsible for putting into the atmosphere every year. The chart below shows the range of carbon footprints (adjusted for staff size) of 20 NeighborWorks organizations. You can see that they range from an annual footprint of 3.5 to 12.5 tons of carbon per person per year.

## Carbon per Person
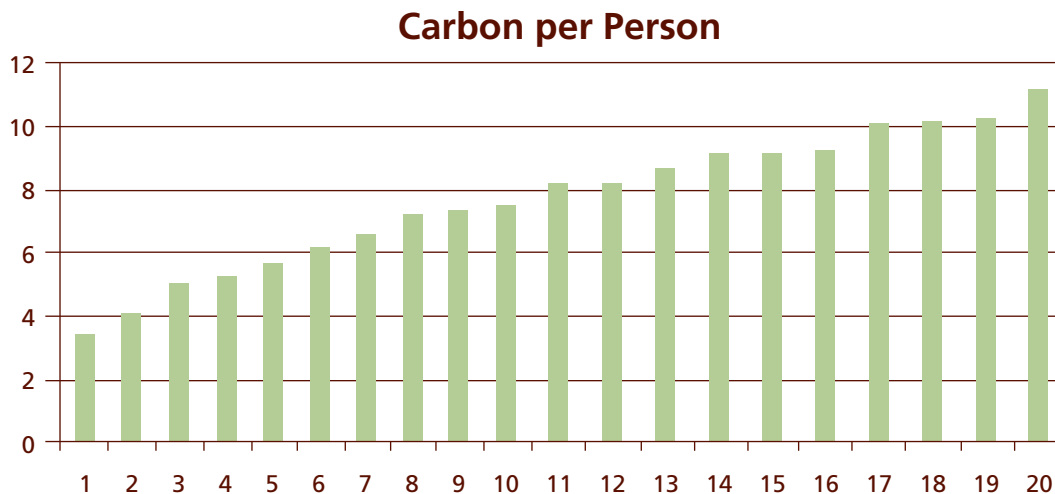
Depending on the calculator and methodology you use, a carbon footprint analysis should also identify your key carbon drivers—the areas where you have the most impact. On the next page is a snapshot of the "average" NeighborWorks Organization carbon footprint, divided by carbon drivers.

# All About Your Carbon Footprint



- Car commuting — 25%
- Local business travel — 8%
- Air travel — 14%
- Utilities — 33%
- Waste — 6%
- Paper — 7%
- Other — 7%
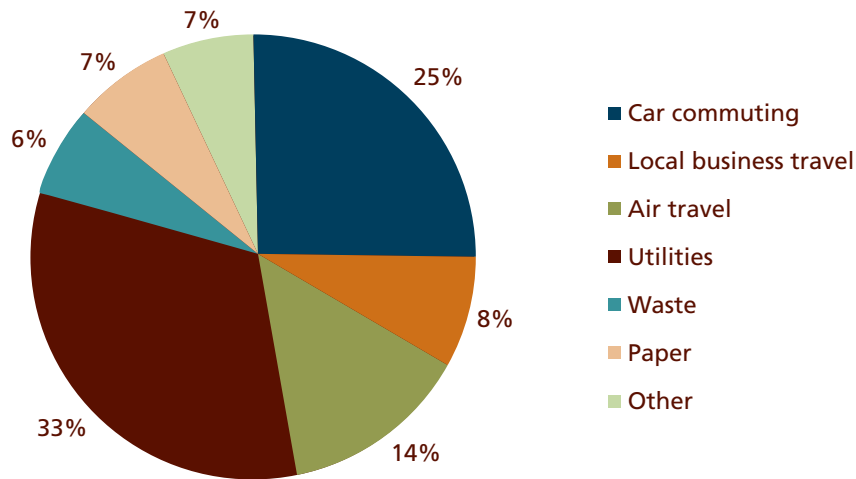
Taken together, you can begin to see how different carbon drivers affect your overall carbon footprint. For example, looking at the 20 NeighborWorks Organization footprints (below), you can see that local business travel appears to be fairly constant across the organizations, but that utility use (electricity and natural gas) play a big part in determining an organization's overall footprint.



Legend:
- Other
- Paper
- Waste
- Utilities
- Air travel
- Local business travel
- Car commuting
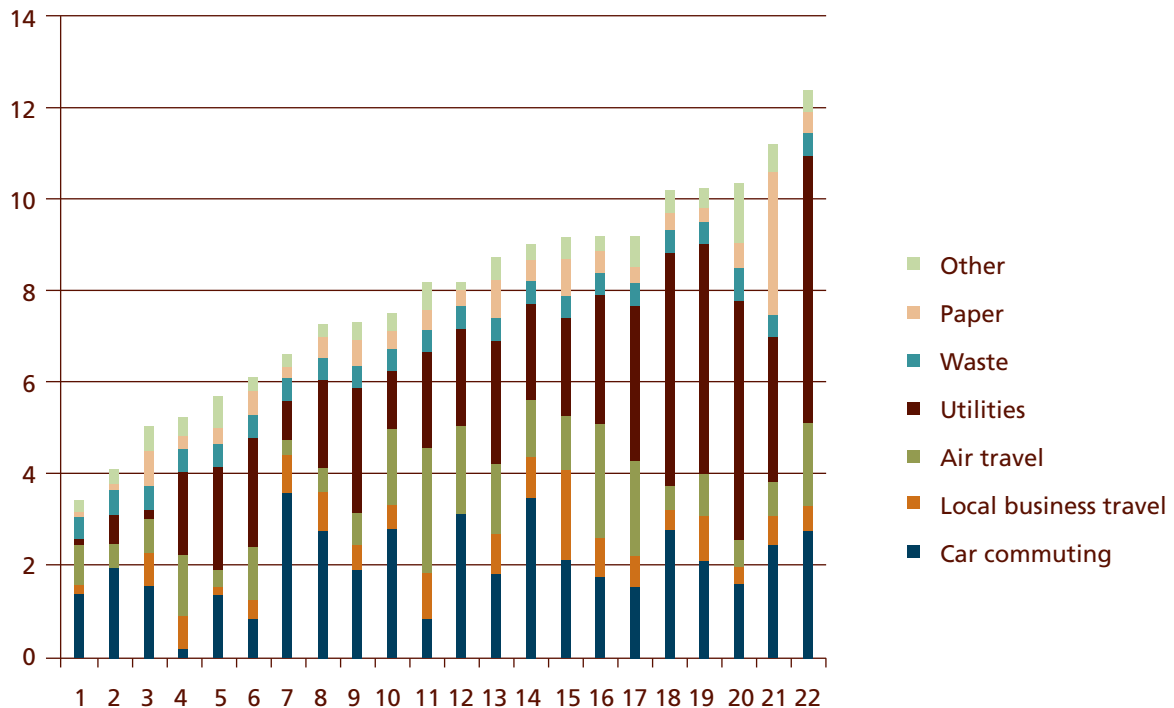
# All About Your Carbon Footprint

***How can I get a carbon footprint analysis of my organization?***

There are a wide variety of carbon footprint calculators, so it's important to choose one that is tailored to your organization model—office, manufacturing, retail, residential, etc. There are free options on the internet, but data collection and extrapolation can be tricky. Plus, if you want to compare your carbon footprint against the organizations shown in this report other NeighborWorks organizations, you'll need to use the same methodology as your benchmarked peers. A sample calculator used for these audits is provided below. Remember, you may wish to consider hiring a sustainability consultant to help your organization conduct its annual carbon footprint evaluation.

| ANNUAL DATA | CARBON DRIVER | TONS OF CARBON | 10% | 20% | 50% |
|---|---|---|---|---|---|
| | | | REDUCTION WOULD SAVE | | |
| 50000 | Car Commuting *(miles)* | 19.2 | 1.9 | 3.8 | 9.6 |
| 25000 | Local Car Travel *(miles)* | 9.6 | 1.0 | 1.9 | 4.8 |
| 75000 | Air Travel *(miles)* | 45.0 | 4.5 | 9.0 | 22.5 |
| 3000 | Electricity Use *(KwH)* | 1.8 | 0.2 | 0.4 | 0.9 |
| 300 | Paper Use *(reams)* | 5.4 | 0.5 | 1.1 | 2.7 |
| | **Total Carbon** | **102.1** | **10.2** | **20.4** | **51.1** |

Once you have completed your own carbon footprint, you can compare it to others in your peer group. For example:

| CARBON DRIVER | MY DATA *(tons per person)* | NW ORGANIZATION AVERAGE *(tons per person)* | RANKING |
|---|---|---|---|
| Utilities | 3.14 | 2.59 | Worse |
| Car commuting | 2.33 | 1.96 | Worse |
| Air Travel | 0.78 | 1.10 | Better |
| Local Business Travel | 0.65 | 0.64 | Same |
| Paper Use | 0.76 | 0.57 | Worse |
| Waste | 0.99 | 0.52 | Worse |
| Other | 0.29 | 0.52 | Better |

## Step Two: Survey Your Employees

By making a green commitment, you've created expectations among your employees. How you manage these expectations will play a big part in the long-term success of your green initiative.

Some employees are going to be enthusiastic and ready to pitch in immediately, but perhaps also a little overwhelmed with all of the improvements that need to be made. Others may be completely clueless about environmental issues—and will need lots of hand-holding along the way. And don't forget the inevitable curmudgeon, that one environmental naysayer who just doesn't see the point.

Identifying these different groups within your workforce and then delving deeply into their motivations, levels of awareness, and concerns is important for three reasons:

1. *It helps you to identify green leaders—those who will gladly volunteer their time to help get initiatives off the ground.*

2. *It helps you to anticipate roadblocks. Like an IT group that can't quite grasp that climate change is real. You'll know to be prepared with other arguments (like cost savings) when you tackle IT issues.*

3. *It helps you to connect areas of employee enthusiasm with areas of major environmental impact. Compare which issues are of highest priority among your staff with your major impacts (identified during your self-assessment). See a place where enthusiasm and impact meet? That's the place to start!*

## Information to Gather

1. *What environmental initiatives are already underway?*

   a. What individuals are involved?

   b. What departments/units are involved?

   c. Are the initiatives successful? Why or why not?

   d. How are they measuring progress?

2. *What do employees think about "going green"?*

   a. Who is a self-identified sustainability champion?

   b. Which employees have specific issues they want to promote? (composting, recycling, etc.)

   c. Who is going to be a roadblock to progress?

3. *What are the politics of changing the status quo?*

   a. How much support has management given to prior "green" initiatives?

   b. Will current leaders want to share/change the way things are done?

4. *How do employees want to be involved?*

   a. Actively participate in setting green strategy

   b. Passively follow new rules/initiatives

   c. Get their hands dirty with waste audits, clean-ups, landscaping, water conservation, etc.

   d. Take what they've learned at work and "go green" at home

# By making a green commitment, you've created expectations among your employees.

# Sample Employee Survey

As you know, our organization has made a commitment to "go green". As the Green Team crafts a final Green Action Plan, we'd like to hear from you! Tell us which environmental issues are foremost on your mind, and where you think we should focus our priorities.

1. *Which of the following activities have you participated in at work during the last month?*

   a. Telecommuting

   b. Video and/or web conferencing

   c. Carpooling

   d. Taking public transit to/from work

   e. Printing double-sided

   f. Reusing scrap paper/folders/envelopes

   g. Turning lights off when not in use

   h. Recycling paper

   i. Recycling plastic/aluminum/glass

2. *Do you think our organization today is effectively addressing its environmental impacts?*

   a. Yes, definitely

   b. Sort of, maybe

   c. Neutral

   d. Not really

   e. Definitely not

3. *Given all of our other priorities, how important do you think it is to devote time and attention to "going green"?*

   a. Very important

   b. Somewhat important

   c. Neutral

   d. Not very important

   e. Not important at all

# Sample Employee Survey

**4. Which of the following environmental areas should we focus on for 2009?** (choose three)

    a. Energy efficiency *(example: turning off lights, adjusting the thermostat)*

    b. Waste and recycling *(example: better communication about what can be recycled)*

    c. Paper use *(example: printing double-sided)*

    d. Business travel *(example: greening air travel, carpooling to conferences)*

    e. Employee commuting *(example: incentives for using public transit, telecommuting)*

    f. Kitchen supplies and food
      *(example: replacing old appliances, or switching to fair trade/organic coffee)*

    g. Green building *(example: replacing doors/windows, adding insulation and skylights)*

    h. Other *(specify)*


**5. In which of the following would you be likely to participate?** (choose all that apply)

    a. Actively participating as a member of the Green Team

    b. A monthly brown-bag lunch to learn about green topics

    c. A quarterly "Saturday volunteer" event to clean-up and landscape our grounds

    d. An annual "Saturday volunteer" event to help green our community

    e. Helping prepare green events for our customers/clients

    f. Helping write/disseminate information about our green office initiatives to other employees


**6. Would you be willing to volunteer your time to help get our green initiative off the ground?**

    a. No thanks

    b. Yes, I can devote 1-2 hours a month

    c. Yes, I can devote 3-5 hours a month

    d. Yes, I can devote 5-10 hours a month

## Step Three: Determine Your Priorities

At this point in the process, you should have a general idea of the areas where you have the greatest environmental impact. If you're like an "average" NeighborWorks organization, your top issues (based on your carbon footprint) might be:

## Percentage of the Average NW Organization Carbon Footprint

**DECREASING IMPACT**

Utilities – about 33%

Car commuting – about 25%

Air travel – about 14%

Local business travel – about 8%

Paper – about 7%

Waste/Recycling – about 7%

You should also have an idea of where employees are most enthusiastic. Looking at the employee survey results from an average NeighborWorks organizations, when asked to identify their top choices for environmental initiatives, an average survey response might look like this:

| Category | Value |
|---|---|
| Paper Use | ~81% |
| Waste/Recycling | ~77% |
| Energy Use | ~66% |
| Employee Awareness/Communications | ~46% |
| Information Technology | ~23% |
| Kitchen Supplies/Food | ~18% |
| Commuting | ~18% |
| CustomerAwareness/Communications | ~14% |
| Air Travel | ~3% |
| We don't need environmental improvements | ~3% |

0.00%   20.00%   40.00%   60.00%   80.00%   100.00%
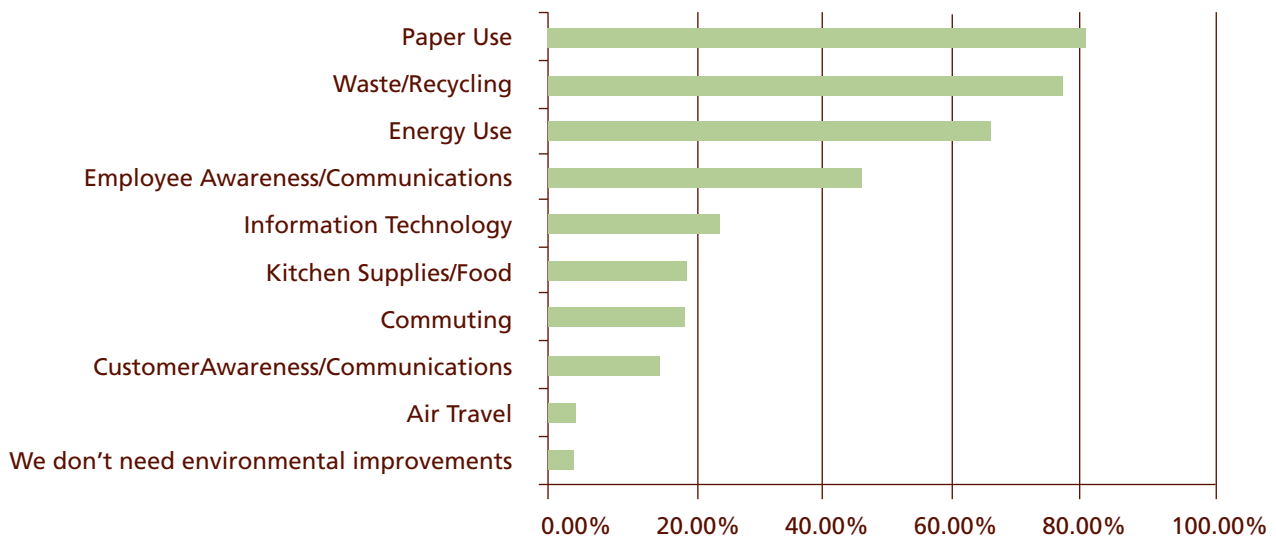
The next step is to decide on your priorities—ideally a mix of high-enthusiasm and high-impact areas. Then get ready to do a little brainstorming, preferably in a small group with other employees. (It's good to have a mix of departments/job functions present, to ensure that you are getting enough viewpoints.) First identify 3-5 green issues that you'd like to tackle over the next year. Then brainstorm specific actions that you can take to "go green" around the issue. (Use the chapters in the second half of this guide to help generate ideas!) Place each of these items in a grid and map out the answers to the following questions:

1. *Does this measure move us in the right direction?*

2. *Is it flexible so that we can adapt to changing circumstances?*

3. *Does it make good business sense (return on investment – both financial and non-financial?)*

You might also include an analysis of the following "gray areas":

4. *Potential magnitude – does the problem we're trying to address have a severe and/or irreversible impact on the environment?*

5. *Relative contribution – are we a large contributor to the problem?*

6. *Urgency – is it important that we address this issue immediately?*

7. *Visibility – is our decision to address/delay/ignore this problem going to be highly visible to our stakeholders?*

8. *Efficacy of possible solutions – do we have the technological and financial resources to address the problem?*

9. *Uncertainty of data – do we have enough information to make an informed decision?*

Color-coding your answers (green means "yes", blue means "maybe", orange means "no") will immediately give you a visual clue as to how to prioritize your actions. The next page provides an example so you can begin to visualize the process.

## Balancing Priorities

You'll find that paper use, waste/recycling, and energy use almost always comprise the top three issues that employees want to see addressed. At the same time, paper use and waste/recycling together may only make up 14% of the average organization's carbon footprint—where energy use (electricity and natural gas) could make up a whopping 33% of the average carbon footprint.

This mismatch may leave you with a dilemma. How do you meet employee expectations for issues with smaller relative impacts while still addressing the "big" ones? The trick is to focus your actions for "smaller impact" issues on improvements that can be accomplished cheaply and easily—like setting all of your printers to print double-sided by default (which can cut your paper use up to half!).

At the same time, save the bulk of your effort and budget for tackling the "big" issues, just as installing occupancy sensors or purchasing power management software for your computers—or even investing in some green building upgrades like new windows or additional insulation.

This tag-team approach lets you keep employees happy AND make a big different to your carbon footprint.

| STEP | EXAMPLE |
|---|---|
| 1. Identify a focus area | Paper Use |
| 2. Brainstorm action items | Set printers to print double-sided |
| | Buy 100% recycled paper |
| | Reuse interoffice envelopes |
| | Switch to an e-fax system |
| | Buy FSC-certified paper |
| | Stop our junk mail |
| | Ask for paperless billing |
| | Set up an electronic filing system |
| | Add more paper recycling bins |
| | Provide employee education |
| 3. Prioritize green items | See the chart below |

*(Note that your answers will be different depending on your organization's business model, products & services, and modes of communication with employees and customers.)*

| | Overall High Priority? | Direction | Flexibility | Business Sense | Magnitude | Contribution | Urgency | Visibility | Efficacy | Uncertainty |
|---|---|---|---|---|---|---|---|---|---|---|
| **Paper Use** | | | | | | | | | | |
| Set printers to print double-sided | Y | Y | Y | Y | M | M | M | Y | Y | Y |
| Buy 100% recycled paper | Y | Y | Y | M | M | M | M | M | Y | M |
| Reuse interoffice envelopes | M | Y | Y | Y | N | N | N | Y | Y | Y |
| Switch to an e-fax system | M | Y | M | M | M | M | N | Y | Y | M |
| Buy FSC-certified paper | N | M | Y | M | M | M | N | N | Y | M |
| Stop our junk mail | M | Y | M | Y | M | M | M | M | M | M |
| Ask for paperless billing | M | Y | Y | Y | N | N | N | N | Y | M |
| Set up an electronic filing system | Y | Y | M | Y | M | M | Y | Y | Y | M |
| Add more paper recycling bins | Y | Y | Y | M | M | M | Y | Y | Y | Y |
| Provide employee education | Y | Y | Y | Y | M | M | Y | Y | Y | Y |

Y = Yes    M = Maybe    N = No

## Step Four: Create an Action Plan

If you've been following along with this process, by now you have strategically identified several overarching green issues to focus on over the coming year. You've also identified which specific actions make the most sense to pursue, given their relative environmental impact, their potential for success, and other business considerations (like flexibility and return on investment).

Now it's time to allocate resources. For each of the high priority action items (those that make it past the grid evaluation process above), complete the following questions:

*1. Who will have responsibility for accomplishing this task?*

*For every action item, you need to select a single person who will be accountable for the project. There may be many people involved in the task, but at the end of the day there needs to be a single point of reference for everyone involved.*

*2. What resources are needed?*

*Identify all of the things that you'll need to accomplish the task at hand. How many hours will need to be devoted to each action item? What technical issues (new IT hardware/software, for example) do you need to address? How much money do you need to invest? Be generous here –there is sometimes a tendency to underestimate the resources you'll need in order to make it "look feasible". In reality, if you don't have the personnel, technology, and budget to see a project all the way through, you need to go back to the action item and see if there is a way to break it down into smaller, more manageable pieces. If you can't break it down further, and still don't have the necessary resources, it's better to put the project on hold completely.*

*3. What is the timeline?*

*Figure out how long it will take to finish each task. This is different than the total number of hours people will spend actually doing the task, but rather the number of days or weeks that will elapse from beginning to end of each action item. So while it might only take 5 hours to install power management settings on all of your organization's computers, it might take a whole week to complete the task (doing a few computers each day).*

*4. How will we measure progress?*

*As we noted earlier, what gets measured gets managed—and it's especially true with green initiatives. In order to create a solid green plan, you absolutely MUST be able to compare "before" and "after". Too many organizations try to retroactively measure their progress, but it's much more effective to choose a measure ahead of time to ensure that you gather the right data along the way.*

Make sure you have input from a variety of people during this process, since it's important to have an accurate and reasonable action plan before you begin to try out specific actions. Additionally, be sure to put it all into a single document—an action plan needs to be something everyone can see and touch and edit. Having the plan in your head, or in a scattered set of notes and emails, invites confusion and conflicting expectations—especially about the time and effort being allocated to different initiatives.

Once you have a green plan on paper, the next step is to begin actually making the improvements! As you get started, you'll go through a process of trial and error. Don't be afraid to go back and modify your green plan document—in fact, plan to regularly evaluate your plan to tweak and adjust accordingly. Remember that your plan is a living document!

# Example of a Goal Tracking Spreadsheet

*(Note that you should add additional columns for "observations and next steps" at quarterly intervals)*

| | BASELINE | GOAL | ACTIONS TAKEN | DATE STARTED | DATE COMPLETED | OBSERVATIONS AND NEXT STEPS |
|---|---|---|---|---|---|---|
| **Green Team** | No organized effort | Create team of 6-10 people | Green team created | | 6/1/2008 | Currently 7 members |
| | | Meet regularly | Meetings scheduled every 3 weeks | 6/1/2008 | | Carbon footprint results discussed |
| **Paper Use** | 36 reams/month; 430 reams/year | 10% reduction in 6 months | Staff encouraged to print and copy 2-sided | 6/1/2008 | | 28% monthly reduction achieved |
| | | | Bins placed at printers for 2-side paper use | | 9/22/2008 | Bins being used frequently by 40-50% of staff |
| | | Purchase recycled paper | Research options | 6/1/2008 | | $3-$4 price premium for recycled paper |
| **Commuting and Transportation** | Average commute 25.4 miles | 10% reduction in commuting miles | Research started on telecommuting, rideshare, and flextime work options | 6/1/2008 | | Rideshare seen by staff as most feasible; telecommuting needs research |
| | | | Staff encouraged to use alternate commuting options | 9/1/2008 | | Participation negligible; adding incentive |

# Practical Considerations

The key to implementing long-term change is to embed it in the organization's culture. By creating a Green Team that is responsible for researching green options and is empowered to implement new initiatives, your organization can integrate environmental responsibility into the core routines of day-to-day operations.

### MEMBERSHIP

While Green Teams will vary in size depending on the overall number of employees in your organization, they function best at 6-12 people. If you find that you have more interested participants, allow them to take on more specific tasks (like organizing brown bag lunches on green topics), but keep the actual Green Team relatively small to facilitate effective decision making.

### LEADERSHIP

The Green Team should be led by a single person (or co-chaired) so that responsibility and assignments can be clearly delegated. You may choose to make this a rotating position, with a new leader selected every 6 months or year if desired. Make sure the leader has the approval of his or her manager, so that they can devote the necessary time to facilitating project implementation, preparing for and attending meetings, and conducting follow up with other members in between meetings.

### STRUCTURE

The Green Team should meet separately on a bi-weekly or monthly basis to discuss greening options, review work done by individual members, and to determine appropriate timelines and targets. In addition, at each staff meeting, the green team should be given 10-15 minutes to present findings and make suggestions, so that all employees can give feedback and participate in the process.

### DOCUMENTATION

Create a working "green team strategy" document that shows the topics under current consideration, the personnel assigned to research the options, the decisions that are made, and the location of any supporting materials. This document functions as an "at a glance" summary of the organization's green efforts, and helps ensure that all employees are on the same page in terms of priorities and goals.

The preceding pages have explained the process of putting together a green plan. The rest of the guide is dedicated to providing insight and examples of specific green initiatives—ranging from energy efficiency to paper use, green cleaning to customer awareness. Use them to guide your thinking about specific actions to green your organization. And use the associated websites, resources, and case studies to delve deeper into the topics, to tailor the suggestions into an action plan that will strategically and effectively guide your organization towards a lower carbon footprint. You're ready to begin!

# EMPLOYEE AWARENESS

Companies' ambitious efforts to *reduce waste, pollution, and other forms of inefficiency* — not to mention create new markets for cleaner and greener solutions to meet customers' needs — can be thwarted by employees' lack of environmental awareness and personal habits. The disconnect squanders opportunities for employees to embrace a green ethic all week long, not just during the workday, and to bring to their jobs ideas and inspiration for a greener company.

– **Joel Makower**, *Greenbiz.com*, November 18, 2008

Because the pressure for sustainability so often comes from outside an organization, it can mistakenly lead organizations to ignore one of their most important audiences and resources – their employees. Employee awareness of sustainability goals and policies is as important (if not more so) than awareness among other stakeholders for a few reasons:

## Food for Thought

In their haste to go green, some organizations are missing the boat. A case in point is a Fortune 500 company. The CEO, a self-described environmentalist, became chairman of the company in 1999 and CEO in 2001, publicly proclaiming his intention to lead a green industrial revolution. But after initial widespread praise, several environmental groups have strongly criticized the company for not making better progress. The cause? Ironically, recent profiles of the company's environmentalism have identified RESISTANCE WITHIN as the greatest obstacle to success.

**Lesson: Begin from the "inside out."**
**Get employees on board.**

First, many employees might not understand sustainability, particularly as it relates to the organization, which can undermine greening efforts. If employees don't fully understand the organization's greening goals and why they are important, they can – at best – be only lukewarm supporters, or – at worst – be cynical about its benefits and authenticity. Either way, this will only slow efforts toward sustainability, and can even lead to accusations of "green washing."

The second reason to "get one's internal house in order" is that at the end of the day, it's your employees' commitment and participation that will achieve the organization's sustainability goals. They are the drivers behind any lasting change, and so, as with any other organizational goal, the success of greening goals depends directly on their sustained involvement.

Another powerful reason to raise employee awareness is that they will be one of the best practical resources in making the change to sustainability happen. No one knows the organization and its daily processes better than the workers themselves. And the best source of ideas and tools to become more sustainable resides in their heads and hands. They are the ones who will most quickly spot inefficiencies, help reduce costs, and create better methods. Furthermore, research shows that employees want to contribute to their workplace's sustainability efforts – they just need to know it's acceptable, and even expected, by their bosses and organizations.

Finally, remember that the challenge of sustainability is ultimately a human behavioral challenge – even more than an environmental or technological challenge. Making your company more sustainable is first about getting your people to stop doing some things they currently do, and start doing some things that they aren't doing.

Your employees are the change we want to see in the world, so start there. Here's how:

## 10 ways to increase employee awareness

### ESTABLISH CLEAR SUSTAINABILITY GOALS AND POLICIES

Make a clear plan so that management and employees are all working toward the same goals and objectives. Start with the basics – a mission statement, objectives, and measurable targets. You might also include the kinds of things employees are now empowered to do. For instance, they are now encouraged to actively look for ways to conserve energy in business operations, or to brainstorm ideas on reducing paper use. Whatever is appropriate for your organization. If sustainability measures are now organizational policies, employees will more easily make the shift.

### TAKE THE PULSE OF YOUR ORGANIZATION

In order to make sustainability relevant to your employees, you have to meet them where they are. That means you have to know them. In particular, you need to know how much (or little) they know about green issues, how sustainability pertains to your organization, and how receptive they are to these ideas. So as soon as possible, take the pulse of your employees with these three questions:

- *What does sustainability mean to you?*

- *How does it apply to your daily work/life decisions?*

- *What would you like to see happen in the organization to support sustainability?*

Use the responses to establish a baseline of where your organization is – and guide your next steps in making sustainability not only relevant to your employees, but meaningful as well.

Possible survey topics include reducing energy costs (e.g., lighting, heating, AC); equipments and business process energy use, including IT equipment; business travel; costs for shipment of goods or supplies; employee commuting; recycling opportunities; using alternative energy sources; streamlining processes; and reducing water usage.

> **Tip**
>
> ***Want to know how to use surveys to gather valuable ideas from your employees?***
>
> One way is to "prime the pump" by directing their attention to specific issues ahead of survey time. For example, give several reminders that a survey is coming out next week/month on using alternative materials, or selecting green suppliers, or whatever the topic, and that employees are expected to contribute actionable ideas on the survey.
>
> Surveying about specific topics will result in better ideas than general "sustainability surveys."

### COMMUNICATE CONSISTENTLY

In attaining green goals, a memo – or even a few – will never cut it. Your organization, no matter how minimal the goals at first, is undergoing a culture shift to becoming more sustainable. To make that leap successfully, employees will need two things: first, to know that management is serious about the commitment, and second, to be consistently encouraged along the path to change.

So, communicate with employees openly, honestly, and frequently! Focus on both the qualitative stories and the quantitative metrics.

And remember – people come and go, change jobs, and units reorganize. But amidst all the change, the sustainability messages need to remain consistent.

### CREATE A GREEN TEAM

Get together a group of motivated individuals from across different areas of the organization to be your "Green Team." They will be responsible for, among other things, identifying the best sustainability projects, how to best publicize them, and how to motivate the troops around these projects. The Green Team meets regularly to evaluate progress, brainstorm, and create next steps.

If possible, give Green Team members the opportunity to attend educational events where they can learn about workplace strategies and connect with other green leaders. Organizations like *Young Environmental Professionals* and *Sustainable Purchasing Network* are a great start.

### HONOR DIFFERENCES – USE DIFFERENT METHODS TO COMMUNICATE

Another basic is to appreciate that your employees have different learning styles. Some learn best visually, others learn by doing; some prefer discussion, others learn best alone with books or videos; some need the Big Picture, others want just what's relevant to their job; some want learning to be fun (through games, contests, etc.), while others just want the facts.

The best way to accommodate this is with a mix of media and activities in your sustainability communications. Try to use as many appropriate methods of communication as possible. Consider newsletters, posters, employee surveys, group discussions, contests, one-on-one sessions, lecture series, CD-ROMS, intranet sites, list-serves, blogs, e-learning, public address systems, big easels set up next to exits, and "Green Bags," which are also discussed below.

If you focus on just one type of communication, it's likely you're not going to reach enough people. So branch out!

### LEAD BY EXAMPLE

Employees aren't going to take environmental initiatives seriously if the leaders and key managers in the organization don't. Recent surveys of employees show that over half could be encouraged to act greener if their employer "led by example". Therefore, leaders must demonstrate a commitment to the sustainability agenda first – and be consistent in their support.

Ways leaders can do this: set personal green targets (in addition to organizational ones), attend green team and educational meetings occasionally, show your familiarity with the green goals, speak out on green issues, recognize and praise successful efforts, show that you think sustainability is an ongoing priority. In short, lead by example.

By consistent efforts to engrain green in the shared organizational culture, you'll create a sense of shared responsibility for the green agenda, as well.

**REWARD AND RECOGNIZE PROGRESS**

People love to be appreciated. So find ways to reward accomplishments, and employees will find ways to accomplish even more.

For example, whatever your green goals are, give employees a way to make suggestions on how to attain them. Consider implementing a points system where green ideas that are implemented receive points that can be redeemed for time off or other benefits. Or have prizes for departments or teams that meet green goals. Maybe the employees that make the biggest efforts to go green are rewarded with attendance at a conference, being able to telecommute occasionally, or other appropriate tokens.

Sometimes, it's enough just to receive recognition – either internally or externally. A plaque, a mention in a newsletter, speech, or meeting, or a simple thank-you are always good ideas. And don't forget to salute your employees in external communications. This goes a long way in building employee morale – and signals that you truly value efforts to create a more sustainable workplace.

Finally, keep charts (for recycling, ideas, energy reduction, whatever) publicly posted to track individual or team progress. It's a great way to encourage engagement and stimulate some healthy competition!

**SHARE THE BILLS**

Envirowise advises organizations and leaders to share their relevant bills with their employees so that workers are aware how much they are paying out for electricity, gas, water, and recycling. This gives employees some knowledge of relevant costs and some concrete starting points against which they can measure sustainability efforts. It also encourages employees to start thinking at the level of the organization – helping them see how their efforts at resource efficiency and minimizing waste contribute to the big picture.

**LEARN TOGETHER AT WORK**

Create a green learning environment and keep employees updated with a Friday Green-Bag Lunch. Have the Green Team organize it, but have ALL employees participate and present on a rotating basis. There are many options here, but one easy idea is to have the presenter find a good case study of someone doing something "green." Then he or she creates a "green theory" that's illustrated by the case study, followed by everyone pitching in ideas about how to apply the theory to their department, or even community.

It's a good platform for learning because when employees have to present to their co-workers, they are sure to really learn their stuff!

## Tip

If you're having trouble getting started, keep it simple, and consider some of these basic ideas until you get rolling:

- Reuse, Reduce, Recycle – a basic of the sustainability agenda

- Initiatives around Lights Out, Computers/ Appliances Off, or Less Paper!

- Bike to Work

- A Magazine Exchange

- Self-closing taps to conserve water

- Separate Trash in Office – Compost, Too!

- Sign up for a Community Supported Agriculture (CSA) box in the office

- Support a local sustainability-related activity, or a clean-up project

### START NOW, AND HAVE SOME FUN, TOO

Be comforted and inspired that your organization is not alone in facing this sustainability challenge. The world is changing along with you, and your employees will increasingly want to understand how sustainability is relevant at work, and how their contributions have meaning. Change will take time, but whatever you do, start now. For it's in the doing that you'll find the answers that work best for your organization.

And remember to have some fun! People like to have fun, and employees will have more energy and motivation for green goals when they are seen not just as a chore, but something that can be enjoyable as well. Whenever you can, create competitions, games, contests, or even performances to let employees join in and let loose a little.

## Additional Resources

*Greenbiz.com*
- *"Hire Education: Do Greener Employees Make Greener Companies?"* by Joel Makower, November 10, 2008
- *"Lack of Incentives Prevent Employees Going Green at Work"* by GreenBiz Staff, January 18, 2007

# ENERGY EFFICIENCY

Improvements in energy efficiency can reduce the need for investment in energy infrastructure, *cut fuel costs, increase competitiveness and improve consumer welfare.* Environmental benefits can also be achieved by the reduction of greenhouse gases emissions and local air pollution. Energy security can also profit from improved energy efficiency by decreasing the reliance on imported fossil fuels…promoting energy efficiency that could reduce global CO2 emissions by 8.2 gigatonnes by 2030.

**– International Energy Agency**

With utility prices on the rise – and no sign of slowing down – energy efficiency has become the low-hanging fruit among those organizations looking to save money and go green.  For NeighborWorks America organizations, energy efficiency has an especially important role, since utility use (electricity and natural gas consumption) is the single biggest contributor to the average organization's overall carbon footprint—comprising a third of the total environmental footprint.

Energy efficiency measures can be both easy to implement and extremely effective in minimizing your environmental footprint. Simply put, energy efficiency is the quickest, cheapest, cleanest way to minimize your organization's carbon footprint, and by proxy extend our world's energy supplies.

Contrary to popular belief, it is actually often more cost effective for buildings to invest in technologies that save power – the "negawatt" (a unit of conserved energy that a power plant never has to generate), rather than to produce more energy from a renewable technology like Solar, Wind, or Geothermal power.

Oftentimes, energy efficiency gets overlooked because saving energy is not quite as sexy as cutting-edge technology. However, a first step should always be efficiency before seeking new sources of energy. Remember, a building lasts a very long time so any energy consumption reductions you make now will be realized over the entire lifecycle of the building.
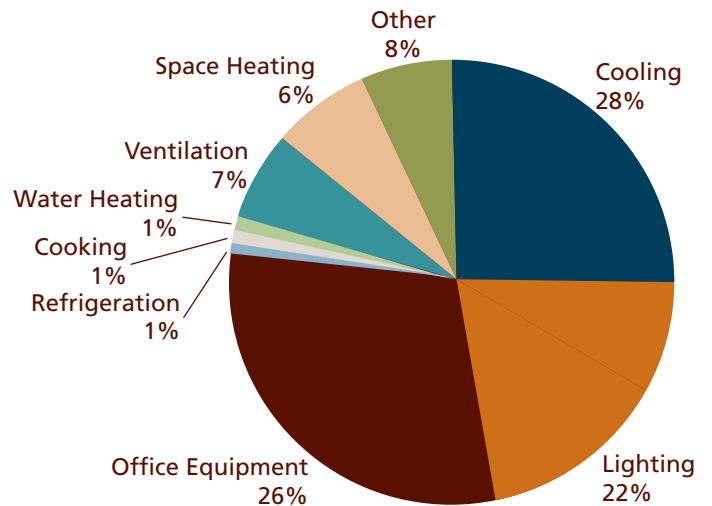


*Building Electricity Use by Activity. Based on data from the Department of Energy, Energy Information Administration, Building End-Use Consumption Survey, 1999.*

## Energy Efficiency by the Numbers

- Energy use in commercial buildings accounts for about 17% of all global warming pollution in the United States. Many buildings could cut energy costs by 30% through investments in improved efficiency. *(Environmental Defense Fund)*

- According to the US Department of Energy, the built environment is responsible for nearly half (48%) of all U.S. energy usage and 76% of electricity demand. *(US Department of Energy)*

- Asset value typically rises $3 for every $1 invested in energy efficiency. And on average in the United States, each MWh of electricity saved translates to more than 1200 pounds of greenhouse gas (GHG) emissions avoided. *(Environmental Defense Fund)*

## Getting Started

A good place to start is to **perform an energy audit**. Audits can be free or relatively inexpensive, while yielding significant financial and energy savings. Contact your local energy utility to arrange an audit (usually free, but somewhat limited in scope), or consider using an independent Energy Auditor. They are easy to find (just search Google for "energy auditor and [your city]" and will usually do a more complete analysis of your building, its HVAC systems, lighting, and other energy sinks.

EnergySTAR for Small Business has a free calculator that allows you to estimate your facility's energy intensity and the potential energy and cost savings you could realize by implementing energy efficiency upgrades.

*(Note: if you share office space in a larger building, you may need to work with other tenants in the building for an accurate measurement.)*

Another good resource on building energy audits is the Flex Your Power energy audit guide (see Resources page 27).

### Tip

Before you conduct an energy audit, be sure to obtain documentation from the previous fiscal year of your energy purchased (e.g. monthly electric and natural gas bills) and calculate total energy usage and spending for your company. This will give you a baseline to measure your progress.

Use the results of your energy audit to forecast the expected annual savings and costs for each potential efficiency investment—such as occupancy sensors, IT power management software, and others. Tax incentives and utility rebates should also be included in the calculation. Once you've run the numbers, implement options that will give you the quickest payback. It not only creates enthusiasm and momentum in your workforce, you can use some of those savings to implement other energy efficiency projects with a higher upfront cost and longer payback time.

## Energy Audits, Checklists, and Calculators

- Flex Your Power Energy Audit Guide (http://www.fypower.org/ )

- U.S. Department of Energy Field Assessment Mangers Program for audits (http://iac.rutgers.edu/)

- The Office Energy Checklist (http://www1.eere.energy.gov/femp/services/energy_aware_oec.html)

- Multifamily Building Efficiency Calculator (http://www.rehabadvisor.pathnet.org/calculator.asp)

- Also, check out the Home Energy Saver auditing tool can help you conduct your own home energy audit (http://hes.lbl.gov/).

## Low Cost Energy Efficiency Strategies

There are a number of ways to save energy and reduce the energy costs for your business. Here are some things you can do at little or no cost to your business!

### LIGHTING & DAYLIGHTING

**Use natural light.** Take advantage of the free light and heat provided by the sun. Turn off lights in areas that have access to natural light. Adjusting the blinds on windows can help heat a room for free or it can keep it cool when needed. *Potential Savings:* As lighting accounts for about 22% percent of energy consumption, the financial savings can be considerable.

**Replace your light bulbs.** Energy efficient light bulbs are all the rage for good reason. They add up to quick savings on your lighting bills. If you haven't already, purchase compact fluorescent bulbs (CFLs) and replace your existing inefficient bulbs. Better yet, use LED lights if possible; while more expensive upfront, they use much less electricity than a CFL and last much longer. *Potential Savings:* According to the Department of Energy, replacing 25% of your light bulbs to CFLs can result in approximately 50% savings on your lighting bill.

**Replace lights in exit & emergency signs.** Obviously, these signs need to be on all the time for safety reasons, but you can still save a significant amount of energy by replacing the incandescent lights in exit signs with LED lights. *Potential Savings:* Changing to LED lights in exit signs can save $20 per year per light.

## Reflections From a Green Auditor on Energy Efficiency

"There are a couple of things that all organizations can do to be more energy efficient; one is easier to resolve than the other. One of the wasteful practices that would be easy to resolve is lights left on in common spaces. While signage reminding employees to turn off lights is admirable and makes them think about their actions, it doesn't solve the problem. Invariably, there will only be a handful of people who turn off the lights on a consistent basis, and they resent doing all the time. The quick, easy, and inexpensive solution is to install motion detectors in these common areas such as the kitchen, bathrooms, supply/mail rooms, conference rooms, hallways, etc.

One of the other wasteful practices I see in almost every audit is the number of personal appliances in each cubicle or office including items such as radios, heaters, fans, mini refrigerators, coffee makers, etc. In most cases, these items are not on power strips, never get turned off or unplugged, and really aren't necessary at all. There is no easy fix here other than for management to crack down on these personal appliances. One of the clients I visited had several full-size refrigerators. The manager I spoke to wanted them gone, but was hesitant and a bit afraid to bring it up. If an office-wide policy were established, employees wouldn't feel individually picked on."

**Install occupancy sensors.** Motion detectors can be relatively inexpensive and easy to install. Use them in rooms such as bathrooms, conference rooms, storage closets, and hallways to ensure the lights are off when rooms are unoccupied. *Potential Savings:* Installing occupancy sensors can save up to 40% on your lighting costs.

**COMPUTERS AND APPLIANCES**

**Use power strips, preferably "smart" strips.** Plug your office equipment into power strips and stop paying for energy used during non-business hours. When computers, copiers, and most appliances are plugged into outlets, they still pull a minimal amount of power out of the wall even when they are shut off (known as phantom or vampire loads). "Smart" power strips will cut this power when your appliances are off, but regular strips need to be powered down manually. *Potential Savings:* Phantom energy accounts for 5% of energy consumed in the United States.

**Turn off office equipment during non-business hours.** This includes computers, printers, copiers, coffee makers—anything that plugs into the wall. First, walk around the building or office and make a list of everything plugged into the wall. Then create a checklist of all equipment that can be shut off at night. Even better, unplug all unused equipment to prevent phantom energy consumption. *Potential Savings:* According to a study done by APS (Arizona's largest supplier of electricity), powering off a desktop computer, a 15 inch monitor, a laser printer and a small copier can save a business about $155 annually.

**Put your computer to sleep.** Screen savers do NOT save energy, so take advantage of power saving features by going into the System Preferences of your computer. Customizing it to sleep after 5 or ten minutes of no use is easy. This is so convenient as it only takes a second for the computer to "wake up" and you can start your work right from where you left off without losing any information. *Potential Savings:* According to the US Energy Star Program, using sleep mode during working hours can save $25-$75 per desktop computer. Check out the following link to calculate your computer's energy savings: http://pmdb.cadmusdev.com/powermanagement/quickCalc.html.

**Purchase ENERGY STAR computers and appliances.** *Potential Savings:* Energy Star computers are an average of 65% more efficient than conventional models and appliances will use 10–50% less energy and water than traditional models.

**Use your laptop.** If you have a choice, use a laptop in place of a desktop computer. They use a significant less amount of energy to run. *Potential Savings:* Every computer is different, but National Geographic's Greenhouse Tips notes that offices can save up to 50% in energy consumption when choosing to use laptops over desktops.

> ## Did you know?
> Water and energy are inextricably linked. Saving water saves on the energy that is required to pump, process, and refine our water and waste. For example, 20% of California's energy use goes towards transportation and processing of water.

# Case Study in Energy Efficiency: NHS Chicago

NHS Chicago started building green demonstration homes in 1992, and began energy efficient practices as of April 2008. NHS Chicago was the trailblazer in Chicago's green building movement, building the first green home in the city in 1992. The term "green" to NHS Chicago refers to an increase in energy efficiency, improvements in indoor air quality/health, and the use of durable/sustainable materials.

NHS Chicago's mission is to save homebuyers money, in addition to building healthy homes that improve their lives and strengthen their neighborhoods. NHS Chicago decided to make significant changes, not in their materials, but in their construction practices. Also, building energy efficient homes differentiates NHS Chicago from other organizations in terms of marketing practices.

## Energy Efficient, Healthy, and Affordable: How it's Done

Energy Efficiency. Tightly sealing and properly insulating a home can save homeowners up to 30 percent on their heating and cooling bills.

In a house, there are a lot of openings that are often not given enough attention. Sealing gaps between walls and pipes, for example, controls temperature and prevents hot air from leaving the room.

NHS Chicago uses spray foam insulation more than cellulose insulation. Spray foam is comparative in price but is easier to use. NHS Chicago builds homes that can keep heat constant around 70 degrees with two small space heaters as a result of the airtight sealing and proper insulation.

Heating and air conditioning in all homes is 95 percent efficient. This means that 95 percent of the energy goes into the house, and 5 percent is dissipated and lost. Windows with high efficiency are used, all being ENERGY STAR rated. Further research is being conducted on dual flush toilets to reduce energy use. In commercial developments, motion-sensored lighting is installed.

## Healthy

Toxic building materials along with poor ventilation and pest problems can cause serious health problems. For example, over 400,000 children have dangerously high levels of lead in their blood from indoor paint.

NHS Chicago's green homes use carpets, paints, wall coverings, and adhesives that emit low levels of potentially harmful volatile organic compounds, which can cause eye and lung irritation and other health problems to eliminate these risks.

## Costs

Demonstration homes cost more, especially with solar panels on display. NHS Chicago has found that building energy efficient homes has seen a 3 percent cost increase; however, NHS tries to purchase cost-neutral green items, items that will not affect the budget.

# Case Study in Energy Efficiency:
# NHS Chicago

## Green Features

There is a 3-star green certificate program in Chicago for homes, with a 3-star rating being the best energy efficient rating. NHS Chicago, however, is not using solar or geothermal energy and is still gaining a 3-star rating in green building. Some of NHS Chicago's green features include the following:

- Bamboo flooring. Bamboo can re-grow in a fraction of the time span that a tree can. Because of this rapid ability to grow, it is considered a grass instead of a tree, which can be grown, cut and used in an environmentally friendly manner. Bamboo is now grown in the United States, so it does not have to be shipped from China.

- ENERGY STAR appliances

- Low VOC paints

- Recycled content carpet

- Sustainably harvested lumber

- Tri-Polymer Foam insulation

- Zoned heating

## Challenges, Surprises, and Advice

Educating contractors to implement energy efficient practices was initially a challenge when the project started; however, NHS Chicago discovered it was relatively easy to get new "green" contractors on board, once more research was done and the staff was more educated on green building practices.

A surprise that NHS Chicago experienced: demonstration homes were more expensive than expected. New technologies like solar panels require maintenance, which can be costly. Solar panels are only installed if wanted by the residents; instead, high efficiency (95 percent efficiency) hot water tanks are installed.

NHS Chicago's advice to other NeighborWorks organizations: start small. You do not need to start with solar panels to "go green". Low VOC paints and bamboo floors are good starters for green building projects. A word of wisdom: start with a shade of green, experiment some, and build up from there.

## Applying What You've Learned

While this example shows how NHS Chicago used green techniques in their construction and home-building, these principles and ideas can be equally beneficial when applied to an organization's home offices. The next time you upgrade your office space, think about how you can increase your energy efficiency!

**HEATING AND COOLING**

**Locate and adjust your thermostats.** Give yourself easy access to controlling the temperature in your business space. Find your thermostats and be sure they are not hidden behind bulky furniture or other items. This will make it more convenient for you to monitor the room temperatures and be certain to adjust areas not being used. *Potential Savings:* Flex Your Power (California's statewide energy outreach campaign) notes that an office can save up to 20% in heating and cooling costs by adjusting the heating system to 68 degrees F in winter and the cooling system to 78 degrees F in summer.

**Install programmable thermostats.** These not only save you energy and money, they are also convenient. You will not have to constantly monitor temperatures throughout your business space and you do not have to worry about someone forgetting to turn down the heat when they leave at the end of the day. *Potential Savings:* More than 20% of the heating/cooling bill.

**Set the hot water heater at 120 degrees.** Use cold water when washing hands or clothes to save more energy and reduce bills for water heating. *Potential savings:* According to the Department of Energy, for each 10°F reduction in water temperature, you can save between 3%–5% in energy costs.
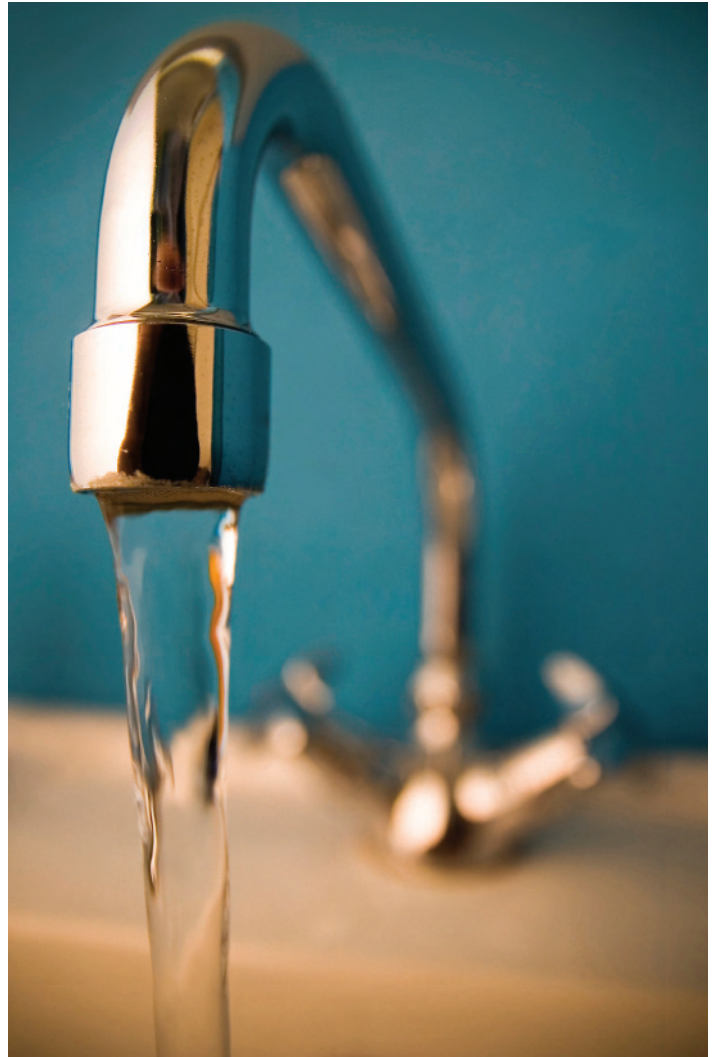
## Additional Resources

- Alliance to Save Energy - http://www.ase.org/
- US Department of Energy (Energy Efficiency & Renewable Energy) - http://www.energysavers.gov/
- Flex Your Power – http://www.flexyourpower.org
- U.S. Department of Energy Efficiency and Renewable Energy (EERE) - http://www.eere.energy.gov/
- Environmental Defense Fund, Energy Efficiency - http://www.edf.org/page.cfm?tagID=31033
- Energy Star - http://www.energystar.gov/
- U.S. Department of Energy - http://www.energy.gov/energyefficiency/index.htm
- GreenBiz Essentials on Energy Efficiency - http://www.greenbiz.com/resources/resource/energy-efficiency
- EPEAT - www.epeat.net - EPEAT is a system to help purchasers in the public and private sectors evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes.
- Greener Computing - www.greenercomputing.com – also has a bi-weekly e-newsletter
- InfoWorld Sustainable IT - http://weblog.infoworld.com/sustainableit/ - also has a bi-weekly e-newsletter

# RENEWABLE ENERGY

"Renewable energy is derived from natural processes that are replenished constantly. In its various forms, it derives *directly from the sun, or from heat generated deep within the earth.* Included in the definition is electricity and heat generated from solar, wind, ocean, hydropower, biomass, geothermal resources, and biofuels and hydrogen derived from renewable resources."

**– International Energy Agency's Renewable Energy Working Party**

Once you have fully implemented your chosen conservation measures and improved your organization's energy efficiency, you will likely still derive aboutat least 22% of your carbon footprint from utility usage. Thus, turning to renewable energy for part of your energy needs can have a significant impact on your environmental footprint—whether purchasing renewable electricity directly from the local utility, buying renewable energy certificates (RECs), or generating your own renewable power, turning to renewable energy for part of your energy needs can have a significant impact on your environmental footprint.

## By The Numbers

According to two studies by the U.S. Department of Energy and the Union of Concerned Scientists, if the U.S. were to supply 10% of its electricity from renewables by 2020 the following would occur:

• Consumer savings: $22.6 billion to $37.7 billion in lower electricity and natural gas bills

• Jobs: 91,220 new jobs—nearly twice as many as generating the electricity from fossil fuels

• Economic development: $41.5 billion in new capital investment, $5.7 billion in income to farmers, ranchers, and rural landowners, and $2.8 billion in new local tax revenues

• Healthier environment: reductions of global warming pollution equal to taking from 25 million to 32 million cars off the road, plus less haze, smog, acid rain, mercury contamination, and water use

## Did you know?

For every kilowatt-hour (kWh) generated from renewable sources you reduce $CO_2$ emissions by one pound.

## Purchasing Renewable Power

Buying "green" renewable electricity—derived from renewable sources like wind, solar, and landfill methane—from the utility company can reduce your company's carbon footprint without a large upfront cost. Although historically more expensive, the increasing availability of green power continues to drive the price down. In some markets, the price for of green power may be even cheaper than the "usual" electricity from coal and nuclear sources; in others it may be anywhere from one to six cents more per kilowatt-hour. As an additional benefit, green power options from local sources (for example, a nearby wind farm) can support the local community by providing jobs and increasing the tax base.

Depending on your local utility, you might find one or more all of the following three options for purchasing renewable electricity:

**Competitive electricity markets.** As a result of energy deregulation, more than 50% of retail customers in the United States now have an option of purchasing a green power product directly from their electricity supplier. If you operated in a market that allows you to choose your energy source, see if there are green choices available!

**Green pricing.** Even if your state is not implementing electricity market competition, you may still be able to purchase green power through your regulated utility. For a small premium, customers can ensure their portion of the utility

# Case Study: Foundations Communities in Austin, TX

| | |
|---|---|
| **Green Project** | Renewable Energy |
| **Date Started** | 2003 |
| **Description** | Since 2003, Foundation Communities has implemented numerous green building elements into all of its new construction and renovation projects, as well as in the organization's administrative offices. Foundation Communities owns 11 properties in Austin and 3 properties in Dallas. Foundation Communities is one of the largest private producers of solar energy in central Texas. |
| | There is a certain portion and capacity of wind coming from Western Texas into the city grid, and the wind power enters a general pool of electricity. However, Foundation Communities has a contract from Austin Energy to make sure that energy is 100 percent renewable at all properties. |
| | All properties range from 100 units to 200 units, with the accounts paid by Foundations Communities running on 100 percent renewable energy (either solar or wind) through Austin Energy. |
| | Solar energy is currently installed on 5 properties, with roof-mounted water heating and photovoltaic systems (solar electric panels and solar thermal panels). |
| **Motivation** | Renewable energy is chosen for long-term owners, and the long-range investments make smart financial sense. Austin Energy has a rebate program set up for any kind of commercial use, and depending on the project, two-thirds to three-fourths of the end cost is covered, which is viable in long-term. Residential, single-family house rebates are also available, with comprehensive rebates from Austin Energy. |
| | Choosing renewable energy also aligns with Foundation Communities' mission of commitment to building and managing affordable housing with strong roots in sustainable practices. Green building practices improve the health of their residents, the durability of their buildings, and the well-being of the environment. Energy and water efficient design elements enable residents to reduce their utility bills as well. |
| **Costs** | For solar energy, Foundation Communities pays the initial cost, with a payback period of 10 to 15 years. After this period, Foundation Communities gets energy for free. |
| | For wind energy, there is a slight premium over "traditional" electricity rates, but Foundation Communities was able to lock in a steady rate, so they won't be affected by any future increases in price later on. |
| **Green Benefits** | By using green power, the organization avoids the nearly 50 tons of carbon emissions a year that would normally be associated with its administrative offices electricity and natural gas. |
| **Other Benefits** | Besides bragging rights, as a non-profit, those interested in donating to Foundation Communities in fundraising efforts are usually more inclined to do so if environmentally sound practices are implemented. |
| **Next on the Green Agenda** | Looking at older properties to take on a new green perspective, since when the properties were built renewable energy was not at the top of the list. More insulation, low flow toilets and other green building components are being installed in older units. |

company's power supply comes from clean, renewable sources. More than 600 regulated utilities spanning more than 30 states offer "green pricing" programs.

**Renewable energy certificates (RECs).** RECs (also known as green tags, green energy certificates, or tradable renewable certificates) represent the environmental attributes of power generated from renewable electric plants. A variety of organizations offer RECs separate from electricity service, that is, you need not switch from your current electricity supplier in order to purchase these certificates.

# Generating Renewable Energy Onsite

The process of transporting electricity from the power plant to your point of use is extraordinarily wasteful. In fact, studies show that by the time the electricity gets to your property, 90 percent of the energy has been lost along the way! Generating your own energy onsite has the potential to save ten times the fuel, cost, and pollution as those incurred by the power plant!

Three technologies particularly lend themselves to onsite power generation for residences and small businesses:
• Geothermal        • Solar        • Wind

While requiring higher upfront capital expenditures in most cases, onsite green energy options cost less to operate. So even without dramatic efficiency gains, they pay for themselves over a reasonable time.

## GEOTHERMAL TECHNOLOGY

Because the average building uses 41 percent of its electricity for heating, cooling, and ventilation (HVAC), investing in an alternative to a conventional electric or natural gas furnace system will have an immediate and substantial impact. A geothermal heat pump (GHP) is one option to consider.

Heat pumps move heat from one place to another - from outside to inside a home, for example. Geothermal heat pumps (GHPs)–also called GeoExchange, earth-coupled, ground-source, or water-source heat pumps—use the constant temperature of the earth as the exchange medium instead of the outside air temperature. This allows the system to reach fairly high efficiencies (300%-600%) on the coldest of winter nights, compared to 175%-250% for air-source heat pumps on cool days.

## Did you know?

Geothermal energy harnesses heat generated at the earth's core – either through deep drilling or from relatively close to the surface.

"Direct" and "district" use geothermal technologies harness hot water arising naturally at the earth's surface – to hot springs and geysers. This technology supplies 95% of Iceland's energy needs.

Hydrothermal electric plants use 300 to 700 degree heat found a mile or two beneath the earth's surface to produce electricity. California, Nevada, Utah and Hawaii all produce geothermal electricity.

Geothermal heat pumps use the stable temperatures found 10 feet below ground as a starting point for adjusting ambient temperatures within building structures. Because they only have to heat the air about 20 degrees, GHPs use between 25% and 50% less electricity than air source systems – reducing emissions by up to 44%.

An air source heap pump can provide one and a half to three times the energy provided by an electric resistance heating system while GHPs can prove up to 72% more efficient.

The earth's constant temperature is what makes geothermal heat pumps one of the most efficient, comfortable, and quiet heating and cooling technologies available today. While they may be more costly to install initially than regular heat pumps, they can produce significantly lower energy bills - 30 percent to 40 percent lower, according to estimates from the U.S. Environmental Protection Agency. Because they are mechanically simple and outside parts of the system are below ground and protected from the weather, maintenance costs are often lower as well.

GHPs usually last 20 years or more – 30% longer than most air-sourced heat pumps. Additionally, depending upon several factors such as system size, geographic location, available incentives and the cost of conventional fuels the payback period on your initial investment can take only a few years—although a good rule of thumb is that a GHP system will pay for itself in 5 to 10 years.

*Potential Savings:* GHPs use between 25% and 50% less electricity than air source systems and reduce emissions by up to 44%.

# Case Study in Geothermal HVAC:
# Rural Ulster Preservation Company (RUPCO)
# of Kingston, New York

RUPCO has been taking progressive steps in providing affordable housing. The Kirkland Hotel, a 20,000 square foot mixed use building (restaurant, office & residential), is great example of utilizing existing structures and helping to revitalize a community.  When RUPCO took on this aggressive project of restoring an historical hotel in downtown Kingston, NY, located just a few blocks from their other offices, they found going green not only essential, but cost effective even in the short run.

Installing a Geothermal Heat Pump System (at times referred to as a Geoexchange System) in the Kirkland Hotel became a priority for 3 main reasons:

1. energy efficiency and sustainability

2. lack of surface area for remote condensing (AC) units

3. limited building wide infrastructure requirements.  The system itself includes twenty 300' wells dug under the parking lot, redundant circulators with variable speed drives, and 20 heat pumps (btw. 3 and 5 ton units).

There were no special challenges to installing the system outside of the typical construction related coordination. Although the numbers show a fairly quick payback for the system, RUPCO was still able to use a grant from Home Depot and the NYSERDA loan fund program to help finance the system.

It is both important and exciting to note that with the exception of natural gas to supply the cooking and hot water needs of the restaurant, the building is now completely free of fossil fuels.

A brief look at costs and current numbers is below:

- total cost of system: $600,000

- total cost of a traditional HVAC system would have been: $300,000

- estimated payback time of entire system: 7 years

- each apartment unit (600sf) monthly utility cost: $35

- 3500sf of office space for 2 months (includes all power requirements and cooling): $263.61

While geothermal heat pumps will improve HVAC efficiency, they still require electricity to operate—and don't reduce the energy needed to power lights, computers, and other office equipment. While the electricity needed can come from the electrical grid through the purchase of renewable power, installing a solar system to provide some, if not all, of your electrical power will have a real impact on your carbon footprint. To achieve fully reliable power these systems must include a battery backup system to supply power when the sun isn't out. From basic **solar thermal electric** to more involved **PV technologies**, solar energy can supply electricity to the building, add warmth to individual rooms using solar windows, and increase the energy efficiency of a conventional HVAC system.

**Did you know?**

Solar power consists of two main technologies:

**Solar thermal electric** warms either air or liquid to circulate through a system of pipes.

**Photovoltaic (PV) technology** converts sunlight directly into electricity and distributes power through and electrical system.

In larger buildings **transpired solar collectors** – panels integrated on roofs or affixed to exterior walls – provide a low cost way of pre-heating ventilated air (in a similar process to the one used by a geothermal system). When further combined with photovoltaic (PV) collectors, a building can use solar power for producing both HVAC and electricity to economic and environmental benefit. *Potential Savings:* Reduced heating expenses of 20% to 50%.

For smaller buildings an **extractor fan in the attic** can substantially reduce the cooling capacity needed to make the interior space comfortable and help prevent structural degradation (see Green Building section). Any roofing contractor can easily install this small self-contained solar power system. *Potential Savings:* For a purchase price between $350 and $600 (about $200 more than a traditional fan) plus labor, you will reduce the unit's operating cost by approximately $10 per month – recouping your investment 2 years or less. In addition, the added indirect cost savings resulting from better roof maintenance could yield far greater long term benefit.

In areas where cooling needs predominate, **natural convection cooling towers** – another way to passively use solar energy – can eliminate the need for mechanical air conditioning altogether. Installing a solar chimney – a system that incorporates solar and geothermal technologies into a passive ventilation stack can be an integral part of such a design.

In all regions – those with or without abundant solar resources– customers can easily install **solar powered hot water systems**. Solar systems can supply between 40% and 70% of hot water needs in New England and from 50% to 80% in the "sun belt" areas. With these operating benefits, a $3,000 to $5,000 investment can pay for itself in 3 to 5 years and continue to provide energy savings throughout the system's 25 to 30 year lifespan.

Solar water heater designs begin with a method for collecting solar heat. **Active solar water heaters** either pump water directly through the collectors or pump a heat transfer liquid through the collectors before transferring – via a heat exchanger – heat to potable water. **Passive solar systems** (the most efficient of all options) either use water directly heated by the sun or employ convection – taking advantage of the fact warmth rises – to heat and store hot water. A **thermosyphon system** (employing convection) requires structural building strength, as the full hot water tank must sit above the collector.

*Potential Savings:* While generally costing more to purchase and install than traditional systems, solar water heaters incorporating PV panels could yield 50% to 80% savings in operating expenses. The savings realized depend on:

- The amount of hot water you use
- Your system's performance
- Your geographic location and solar resource
- Available financing and incentives
- The cost of conventional fuels (natural gas, oil, and electricity)
- The cost of the fuel you use for your backup water heating system, if you have one.

# Case Study in Solar Power:
# National Council on Agricultural Life & Labor
# Research Fund, Inc. (NCALL), in Dover, Delaware

NCALL already purchases recycled paper, has a recycling program in place, and encourages carpooling when possible. But when it got the results of its Green Audit in October 2008, the organization decided to take a bold step and explore the options for renewable energy at its headquarters.

In February 2009, NCALL completed the installation of 66 solar photovoltaic panels on the roof of its Dover office. Taking advantage of the building's perfectly oriented roof (south facing slope is best), the panels were installed in just three days, with the help of a local contractor. Each panel generates 210 watts of power, and is expected to provide 70% of the 6,000 sq. ft. office building's electricity needs.

The Longwood Foundation and the City of Dover assisting with financing. The total cost of the system was $88,000, but will pay for itself in approximately nine years through generated electricity for the building, as well as a revenue stream of energy credits.

A monitor in the organization's lobby displays energy savings, kilowatt hours generated daily, and also graphs the reduction of the organization's carbon footprint. It's a great way for employees and visitors to see in real time the positive impact the solar panels are having on the organization, and the environment too!

NCALL has received positive feedback from its employees and the local community. In the future, NCALL hopes to apply this state-of-the-art technology to its multi-family housing and first-time homebuyer work.

Did you know that solar energy also powers the wind? Wind results from the sun heating the atmosphere, the rotation of the earth, and variations in the earth's terrain. Harnessing wind energy can cost less than solar, however. While the costs of solar installations remain constant regardless of array size, when scaled up wind power costs diminish. A small, 50 watt, wind system might cost $8 per watt as compared to $6 per watt for solar. But for a 300 watt system, wind costs drop to $2.50 per watt or less while solar costs remain unchanged. Thus, in areas of the country with sustained wind speeds of approximately 8mph to 10mph (largely the plains and mountainous regions) small wind turbines present an excellent opportunity for reducing reliance on the electrical grid for power. Because, like solar, wind can only supply power intermittently, installing a hybrid wind/solar system can make excellent sense because the two technologies tend to work counter-cyclically. *Potential Savings:* According to the Department of Energy, wind energy is the least expensive renewable energy source, costing between 4 and 6 cents per kilowatt-hour – slightly more than conventional electricity and about double the cost of natural gas.

## Other Opportunities

### SMALL SELF POWERED SYSTEMS

For those with budgets unable to permit capital investment in renewable energy, opportunities for carbon foot print reduction do exist on a smaller scale. Several small appliances on the market today come equipped with PV cells or cranks. **Exterior lighting devices, handheld calculators** and **flashlights** come readily to mind. *Potential Savings:* In many cases, choosing renewable energy powered devices cost no more than their conventional counterparts.

**Solar powered chargers** for personal electronic devices and small batteries can replace plug-in transformers in cubicles located close to the windows. For offices whose employees spend time out in the field, more substantial chargers can supply power to larger items like laptops. For off-grid settings, these larger chargers can even power refrigerators! A kit capable of these larger tasks includes a small PV array coupled with a battery pack. Such systems run from about $400 to $1,000.

Hybrid solar wind systems can provide an additional renewable energy alternative for small continuous power applications such as **streetlamps and security equipment** in parking areas. Prices range from under $1,000 for a small self contained unit to $13,000 for a 1.5kw grid-tied system. *Potential Savings:* Depending on the situation these systems can pay for themselves in less than 10 years.

## Considering renewable energy for your organization?

Take our advice...

1. Long-term benefits make sense in areas with rebates, especially with solar rebates. In cities like Austin it is a "done deal"; however, in some places in the U.S. it may not make sense financially.

2. Be willing to extend the timeline for paybacks. Most owners want paybacks in a 2 to 4 year time frame, but the adequate time frame is really 10 to 15 years.

3. Local installers are necessary for solar panel upkeep and repair. Solar panels need annual maintenance, so having local companies nearby is essential.

## The Future of Renewable Energy

Taking these easy and cost effective steps toward environmental sustainability today will help build local communities while reducing harmful emissions. In some jurisdictions, regulations require that a specific percentage of the electricity purchased by government agencies come from green sources. For example, the Energy Policy Act of 2005 requires federal agencies to purchase 3 percent of their electricity from renewable sources beginning in fiscal year 2007, increasing to 7.5 percent in 2013. Possible legislation could expand this Renewable Portfolio Standard (RPS) to 25% by 2025. These changes should continue to drive down the capital costs associated with renewable energy resulting in shorter payback periods.

## Additional Resources

**RENEWABLE ENERGY**

- US Department of Energy – A Consumer's Guide to Renewable Energy: http://apps1.eere.energy.gov/consumer/your_home/

- US Department of Energy – Federal Energy Management Program: http://www1.eere.energy.gov/femp/renewable_energy/

- You can download a copy of "Guide to Purchasing Green Power: Renewable Electricity, Renewable Energy Certificates and On-site Renewable Generation" from: www.iea.org/textbase/nppdf/free/2000/Renew_main2003.pdf

- Find ways to purchase renewable energy for your organization from the Center for Resource Solutions (CRE) Green-e program: www.green-e.org/base/re_products?cust=b

**GEOTHERMAL**

- For a clear and concise explanation of how a Geothermal System works, please see the New York State Energy Research and Development Authority website: www.nyserda.org/programs/geothermal/default.asp

- Geothermal Heat Pump Consortium: www.geoexchange.org/

- International Ground Source Heat Pump Association: www.igshpa.okstate.edu/geothermal/faq.htm

**SOLAR**

- Learn where to find a solar tour in your area from the American Solar Energy Society: www.ases.org/index.php?option=com_content&view=article&id=158&Itemid=16

**WIND**

- For the Department of Energy's Wind and Hydopower Technologies Program see: http://www1.eere.energy.gov/windandhydro/

- To see if wind power makes sense in your region, the DOE has a map at: http://www1.eere.energy.gov/windandhydro/wind_potential.html

- For an explanation of wind power: www.skystreamenergy.com/

**INCENTIVES & GRANTS**

- To learn more about available incentives the Database of State Incentives for Renewables & Efficiency (DSIRE) has a comprehensive list available on their website: www.dsireusa.org/

- Research possible grant funding sources at: Smart Communities Network www.smartcommunities.ncat.org/management/financl.shtml or EPA Green Building: www.epa.gov/greenbuilding/tools/funding.htm

# EMPLOYEE COMMUTING

*In 2008, 40 percent of companies offered some sort of commuter benefit program.* Forty-nine percent offered flextime, 42 percent offered telecommuting, 24 percent offered tax-free commuter benefits and fewer than 10 percent each offered subsidized vanpool or carpool.

**– 2008 TransitCenter Commuter Impact Survey**

For the average NeighborWorks organization organization, car commuting is the second largest contributor to climate change (after utility-related energy use).



### Did you know?

One study showed that commuting five days a week releases more than 51,000 pounds of CO2 into the environment and uses almost 400 gallons of gas per year.

With rising gas prices, the cost of commuting for employees has soared, not to mention that many workers travel alone in their cars with long commutes in heavy traffic. This can lead to less happy and less productive workers, which affects not only the morale at work but also your bottom line operations. For example, a recent internal survey at Sun Microsystems showed that workers gave 60 percent of the time they saved commuting back to the company.

More and more organizations are implementing flextime or telecommuting schemes that allow workers to work from home. This can be a huge factor in attracting the top young talent from college who are an environmentally savvy crowd. So redesigning your employee commuting arrangement can be a recruiting and marketing strategy as well. In addition, many companies link rising commuting costs to employee retention problems.

The main goal is to get people out of their cars into alternative transportation that is less damaging to the environment or by implementing alternative working situations, like flextime or telecommuting. While walking or biking to work is not possible for many employees, every organization can create a realistic plan of action to encourage employees to reduce their commuting footprint. Of course, walking and biking to work is not possible for many of us, but a realistic plan of action can be put into place to encourage employees to reduce their commuting footprint. It just might take a bit of initial research and organizing on your part to get a program started.

# Alternatives to Driving Solo

**PUBLIC TRANSPORTATION (BUS/RAIL/SUBWAY)**
- Gather schedules and information on all transit options and make this easily accessible to employees
- Investigate cost savings to employers and employees (see our resources section)

**CARPOOLING OR CAR-SHARING**
- First look to see if there are existing carpools in your area (search the internet)
- Find other organizations who might want to participate if you start your own carpool group

**VANPOOLING**
- Perhaps challenging to set up, it is an ideal way to have employees relax on the way to work – check out our resources section for ways to find or start a program
- Find other organizations that might want to participate

**CYCLING**
- Creating a healthy lifestyle, saving money and the environment are easy benefits from this mode of commuting
- Investigate an incentive program that might subsidize the cost of a bike for employees
- Provide safe bicycle storage racks where employees can lock their bikes.

**WALKING**
- For those living close to work this creates a healthy lifestyle, saves money and the environment
- Investigate an incentive program that might subsidize the cost of good walking shoes

**TELECOMMUTING**
- Create a successful telecommuting program by first assessing if it is right for your employees – check out this link for suggestions www.commutesolutions.com/letsride/teleworking.html

**ALTERNATIVE WORK SCHEDULES OR "FLEXTIME"**
- Arrive 2 hours early or later than most commuters
- Compressed work weeks – 4 (10 hour) days vs 5 (8 hour) days

**BE CREATIVE** – not every option will work for each organization, so be willing to think outside the box and work with what you can!

## Starting an employee commute benefits program in 10 easy steps

1. **Choose an Employee Transportation Coordinator:**
   Ideal characteristics include self-motivated, problem-solver, promoter, communicator and facilitator.

2. **Win Management Support:**
   Executives need to understand the dynamics between the company, employees and program goals.

3. **Request Free Commute Services:**
   In the San Francisco Bay Area, 511 Rideshare can provide transportation consultants to help coordinate vanpools and commute programs. There are other 511 programs throughout the country but not all offer commuting assistance. Check with your local transportation management agency or transportation provider for city, county, state or regional programs aimed at reducing traffic congestion.

4. **Look at the Big Picture:**
   As you design an employee commute program, consider the commuting needs of your employees, the special characteristics of your company, and transportation options in the area. That includes your employees' travel method and distance, work schedules, surrounding land use, and employee attitudes, among other considerations.

5. **Identify Your Objectives:**
   Identify measurable targets to help you design the best program for your company, such as recruiting and retaining quality employees, reducing greenhouse gas emissions, offer a low-cost benefit, reduce parking needs, etc.

6. **Design Your Program:**
   Create your program based on the unique transportation needs of your site. Consider including carpool incentives (including possible increased parking fees), bicycle facilities, commuter tax benefits, flexible hours, guaranteed ride home program, etc.

7. **Implement Your Program:**
   Establish a schedule and timeline to meet your objectives. Plan implementation steps, establish key agency, company contacts and materials from local transit-related agencies and proponents.

8. **Promote Your Program:**
   Get the word out with flyers, emails, commute fairs, prizes and company newsletters (see section on Promoting Your Commuting Program on the next page)

### Did you know?

NeighborWorks® America implemented telecommuting and alternate work schedules more than seven years ago. Approximately, sixteen percent of staff members telecommute. Staff and managers alike agree that it is a retention benefit.

9. **Measure and Evaluate:**
   Ongoing measurement is crucial to a successful program. Note participation, employee feedback, and costs. Determine those commute-benefit programs that work best and those that don't. Tracking allows you to evaluate your program, gauge its cost-effectiveness and exceed your objectives. Consider tracking by emissions, participation rate, cost and employee feedback.

10. **Expand and Improve:**
    Consider adding additional benefits depending on program success and employee feedback.

*Source: This is an adapted and abridged version of a 511 Rideshare tip sheet, http://rideshare.511.org/*

**PROMOTING YOUR COMMUTING PROGRAM**

If you are not sure how to get employees excited about changing their commuting habits, try some or all of the following incentive programs:

- Start a **"Commuting Club".** If you create a group identity that states clearly and effectively all of your objectives, then your initiatives will be much easier to market. Consider weekly or monthly newsletters and frequent emails that keep people updated on the program, rewards, and also connect employees for carpooling, etc.

- **Launch a competitive rewards program.** Employees participate in the program by logging into an intranet portal (it can be more informal than this) to record the number of miles they traveled to and from work using alternate transportation. Each post can score them points and enters them into a monthly or bi-monthly prize drawing for a gift certificate or carbon offsets – don't give them something that will end up in a landfill!

- **Pay your employees.** Some commuter benefits programs will pay you to not drive alone and will also give employees a transit pass. You may also consider subsidizing walking shoes, bikes, and even hybrid cars. Additional vacation time is another way to indirectly pay your employees. While more expensive to implement, these measures can be very effective. For example, Clif Bar rewards workers with up to $960 annually for walking, biking, carpooling, taking public transit and even riding a skateboard to work.

- **Tax benefits for employees and employers.** Although many employers are aware of tax-free commuter benefits from the IRS, only a few offer them to employees. Pre-tax commuter benefits are popular, and can even save companies money. It works like this: employees can deduct up to a certain $ amount from their paychecks each month, before taxes, to cover the cost of transit or vanpooling. This reduces payroll taxes for employers, and saves workers money.

## Programs to Consider

**Best Workplaces for Commuters** (www.bestworkplaces.org) – a project started by the EPA in 2001. Their website has a wealth of information and ideas for employers regarding financial savings, programs, case studies and ideas. Their program takes geographic challenges into consideration and encourages non-profit organizations to participate. Take a few minutes to look through the website.

**Commuter Choice** (www.commuterchoice.com) – This website has a plethora of ideas and resources, as well as specific information for a variety of cities across the Unites States. The Federal Highway Administration has developed a "Guide to Implementing Effective Commuter Choice Programs", and offers information and tools to help employers reduce costs, keep good employees, and showcase their company.

**Let's Ride** (www.commutesolutions.com/letsride/) – an active program in Central Texas is a great example to look at as well. They give great ideas for commuting options, tax savings and even marketing solutions for promoting the program. Their website contains comprehensive information on the benefits, challenges, cost savings and implementation of the different options for commuting programs.

**LIMITED OR NO PUBLIC TRANSPORTATION IN YOUR AREA?**

Rural areas have special challenges to reducing commuting, but it is still possible. Focus on the options below and read case studies from the resources section to get some ideas.

- Carpooling/RideShares

- Vanpooling

- Telecommuting – maybe not everyday, but try one or two days a week if appropriate to the job

- Flexible scheduling to avoid Rush Hour - arrive 2 hours early or later than most commuters

## Telecommuting: is it right for you?

A clear policy on telecommuting should be established, designed with flexibility that allows each employee/supervisor to work out a suitable arrangement. For example, employees wishing to be considered for working by telecommuting must apply for such consideration. The request may be granted or denied. If granted, the supervisor and the employee will work out the arrangement, oftentimes on a trial basis. Such arrangement must be set forth in writing and signed by both the employee and the supervisor. The arrangement must at a minimum cover the following:

- The duties that will be performed away from the office

- How deadlines will be handled

- Hours to be worked

- How hours worked will be recorded

- If overtime is to be handled any differently than in the office, how it will be handled

- The amount of notice to be given of any change in the arrangement

- How much time the employee should spend in the office and when the employee should report back to the office

- How the employee and the organization will be able to contact each other during the workday

- Any changes in workplace policies that may be necessary due to the telecommuting arrangement

- The employee's understanding and agreement that the telecommuting arrangement is at the will of the organization and may be altered or terminated at any time.

### PITFALLS AND CHALLENGES OF ALTERNATIVE COMMUTES

Alternative commutes are not without pitfalls or challenges. Employees working from home may face distractions, lack of motivation or a yearning for social interaction, while their superiors must adjust to managing an off-site workforce. Safety and weather can keep workers from hopping on bikes and it's difficult to convince someone to choose the bus or train over their car if it will take them a lot longer to reach their destination.

## Did you know?

Many governments are instituting tax incentives or regulations to encourage telecommuting. In Los Angeles, Orange and Ventura counties, the government provides a $500 tax credit to companies initiating telework programs. Georgia offers up to $20,000 in tax credits to conduct feasibility studies and up to a $1,200 credit per teleworker. Virginia offers a tax credit of up to $35,000 per company.

## Important Terms and Definitions

### GENERAL RESOURCES:

- Best workplaces program: www.bestworkplaces.org/about/programfaqs.htm
- Best workplaces Business SAVINGS calculator: www.bestworkplaces.org/resource/calc.htm
- Let's Ride Program from Central Texas: www.commutesolutions.com/letsride/home.html
- "Sustainable transportation in small and rural communities" article from Transport Canada: www.tc.gc.ca/programs/environment/utsp/smallnruralcomms.htm
- TransitCenter Inc., which offers information on tax-free transit benefits: www.transitcenter.com

### RIDESHARE PROGRAMS:

- www.erideshare.com
- www.rideshare.511.org
- www.vanpool.com
- google your city/state for rideshare programs

### CASE STUDIES:

- Community Transportation Magazine – great profiles of current programs for rural areas; check out "Vanpools: A Viable Option in Rural Regions" as it shows a successful program that has been in place for years: http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=155
- Best workplaces case studies: www.bestworkplaces.org/empkit/case-studies.htm

# BUSINESS TRAVEL

The precise environmental costs of travel and meetings are elusive at best, but the point is not: *business travel is not particularly environmentally friendly.* The impacts come principally from the fuel used by planes, trains, and automobiles, and from the solid waste and other emissions associated with the $175 billion business travel industry.

**– Greenbiz.com,** March 13, 2008

Business travel—including both air travel and local business travel—makes up 22% of the average NeighborWorks organization organization's carbon footprint. That's the third biggest impact, after utilities and employee commuting.

In this emerging eco-friendly era, it is time to re-evaluate your business travel. Technologies today are enabling organizations from around the world to do business without ever leaving the office. Teleconferencing and videoconferencing, for example, are effective and nearly carbon-free means of conducting business. When physical travel is a must, however, there are options that can help to green your business travel.

## Business Travel by the Numbers

- Global air travel accounts for approximately 7 percent of worldwide carbon emissions.
- Flying people from Europe back to the United States contributes 3 to 4 tons of carbon dioxide per person. This is more than the amount of carbon dioxide than 20 people in Bangladesh produce annually, and less than half of the carbon dioxide produced by the average American each year from home heating, lighting, and driving a car.
- About 3.2 million acres of trees would need to be planted each year in order to offset the emissions from the 240 billion miles that American business flyers travel annually.

## Getting Started

There are a wide variety of ways to green your business travel—from exploring travel alternatives to making eco-friendly choices while you're on the road. There isn't going to be a solution that is right all of the time, so mix and match accordingly!

**Teleconference.** Host a virtual teleconferenced presentation over the internet. There are many virtual conferencing websites, and it is easy to choose one that is right for your company. There is a range of conferencing types:

*Conference call: As one of the oldest methods, conference calling requires each participant in the group to have a phone or individuals can use programs such as Skype (using a headset or a computer's built-in microphone).*

*Data conferencing: This method allows for live communication, involving a computer screen, keyboard, and online sharing tools for exchanging documents and*

*applications. Services for this option include Adobe Acrobat Connect, Twiddla, IBM Lotus Sametime Entry, Convenos, WebHuddle, and GoToMeeting.*

*Internet teleconferencing: This option uses an instant messaging user interface such as Yahoo! Messenger, Live Messenger, Skype, or Google Talk. Most offer simple video functions in addition to voice and type communication.*

*Video conferencing: As the most complex teleconferencing method, this includes voice, high-quality video, and may include sharing documents, computer-displayed information, and whiteboards. Webex and megameeting.com are two examples of online tools for video conferencing.*

**Choose to use cars whenever possible, or take the train on short journeys.** Try to use airplanes for travel only when the distance exceeds 300 miles. If you have to fly, book direct. Taking off and landing requires a significant amount of fuel, thus flying direct is better for the environment than layovers.

# Case Study in Local Business Travel:
# Community Housing Partners Corporation
# in Christiansburg, VA

To avoid the financial and environmental costs of automobile travel, Community Housing Partners (CHP) has implemented a video teleconferencing system for internal meetings between its Richmond, Virginia Beach, and Christiansburg offices   When working with CHP, outside clients and partners may also benefit from the time and cost-saving technology by borrowing CHP-loaned video cameras for remote meetings. When traveling for business is necessary, CHP highly encourages car pooling. Often individuals will link up with staff in nearby departments or offices to travel to a mutual destination.   The company is also eco-conscious when selecting modes of transportation -- always opting for travel by vehicle or rail before flying. CHP employees have readily accepted the idea of greening their business travel, for it reduces both costs and stresses associated travel, while still enabling staff to stay in regular communication with each other and clients.

**Ask your company to invest in carbon offsets.** If your company has a lot of employees traveling by plane, investing in carbon offsets is beneficial to the environment and can attract some green customers.

**Stay at a Green Hotel.** The Green Hotel Association is comprised of member hotels aiming to reduce their carbon footprint and save money. Bed and breakfasts are other options for eco-friendly lodging. Also, remember to shut off the lights and air conditioning (if the weather is mild) when you leave the room.

**Eat Local.** Eat lobster in Maine or steak in the Midwest. Inquire about the local fare for produce and meat. Farmers' markets and locally grown vegetables are green choices.

**Opt for a hybrid rental car or use public transportation when possible.** If a hybrid is not available, a compact or subcompact car usually is less costly to rent and uses less gas than a larger vehicle. Also, for regional travel, depending on the location, rail and bus options often exist for frequently made trips. For national/international travel, consider a rail journey either one or both ways. Overnight trains offer sleeping accommodations, meals and often have quiet cars.

When traveling to the hotel, consider the option of group vans or taxis to reduce the need for single occupancy taxis.

**Bring less energy-intensive entertainment.** Think about taking a few books instead of laptop computers or DVD or MP3 players.

**Save energy at home while you travel.** Remember to turn off the lights in your home while you are away. For security purposes, installing timers or motion sensors that illuminate for a few hours each day can mimic your presence.

Emptying out your refrigerator and defrosting your freezer are ways to save energy, although it is not very practical. If you store your perishables with your neighbor and adjust the temperature to the lowest setting, you can save energy this way (the temperature can go up to 38°F in your fridge without spoilage, and -5°F in your freezer will keep items frozen).

Unplug all electronic devices such as televisions, computers, monitors, printers, and scanners in addition to small appliances like battery charges, coffeemakers, blenders. You could also shut off your air conditioner while you are away: your home's internal humidity may increase, but you will save money on energy costs!

# Tips for Flying Green

**Fly direct.** Because planes burn the most fuel during take-off and landing, and because stopovers add miles to your destination, try to fly direct whenever possible. Remember that the closest—and most eco-friendly—distance is from A to B.

**Bring your own items instead of using the airline disposables.** Take your own pillow, meal, cutlery, and reusable container for drinks on board.

**Travel in a new airplane.** Newer airplanes are more fuel-efficient and are made from lighter materials, aiming at getting more miles to the gallon. Flying in a newer airplane will burn less gas, leave behind less pollution, and reduce your carbon footprint.

| BALTIMORE TO PORTLAND (R/T, PER PERSON) | |
| --- | --- |
| **Mode of Transport** | **Tons of Carbon** |
| Plane (stopover in Denver) | 2.37 |
| Plane (direct flight) | 2.25 |
| Car | 1.81 |

| WASHINGTON, DC TO ATLANTA (R/T, PER PERSON) | |
| --- | --- |
| **Mode of Transport** | **Tons of Carbon** |
| Plane (stopover in Charlotte) | 0.74 |
| Plane (direct flight) | 0.6 |
| Car | 0.42 |

**Travel on an airline that promotes sustainable practices.** Consider the following:

• Does the airline's policy have a target percentage for increasing its fuel efficiency? For example, Air Canada's policy states: "...ambitious goal of improving fuel efficiency by an additional 25 percent between 2006 and 2020."

• Opt for an airline with fewer delays, for planes burn excess fuel while they wait.

• Does the airline offer a link to carbon offset plans or include the option when you purchase your ticket?

• Does the airline have or plan on building a newer, more fuel-efficient fleet?

• Does the airline's fleet have winglets? Winglets are extensions on the tip of the wing to minimize drag and offer extra lift to cut fuel use. Around 85 percent of all new Boeing 737s have them and more than 50 percent have been retrofitted.

• Is there a recycling program in place for trash on-board and in the terminal?

**Pack light.** A lighter plane uses less gas, and therefore emits less carbon dioxide.

## How to Green your Hotel Stay

**Unplug.** Immediately upon your arrival, unplug unnecessary appliances. If there are 5 lamps, unplug 4. Not needing the mini-fridge? Unplug. Hair dryer? Unplug. Appliances drain energy even if they are not on.

**Put the "Do not Disturb" on your door.** Or you could call the front desk and tell them that you will not need their services during your stay. By doing so, you will save water by preventing the washing of your sheets and towels, and you will save electricity by minimizing vacuuming.

**Adjust the thermostat.** If you lower the temperature by 2 degrees in the winter or raise it by 2 degrees in the summer, you will save energy and not notice the difference.

**Flush less often.** You can save water by not flushing every time. If you choose, you can practice the "if it's brown flush it down, if it's yellow let it mellow" rule.

**Bring your own toiletries.** This prevents the waste of those little plastic bottles every hotel loves.

**Take shorter showers.** The average showerhead in the U.S. releases 2.5 gallons per minute, meaning that a 15-minute shower could use 40 gallons of water.

**Leave the pens and other free goods behind.**

**Recycle.** If the hotel does not recycle, pack them away to recycle later.

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## Additional Resources

**INFORMATION ABOUT CARBON OFFSETS:**
- www.treehugger.com/files/2006/03/survey_of_carbo.php

**MEMBERS OF THE GREEN HOTEL ASSOCIATION:**
- www.greenhotels.com/members.htm

**FOR HELP LOCATING A GREEN HOTEL:**
- www.itsagreenworld.com
- www.greenhotels.com
- www.environmentallyfriendlyhotels.com
- www.Eco.ORBITZ.com

**GREEN ITINERARY EXAMPLES:**
- www.greenconciergetravel.com/business_itineraries_boston.php (Boston)
- www.greenconciergetravel.com/business_itineraries.php (Chicago)

**BEST SEARCH ENGINES FOR NONSTOP FLIGHTS**
- http://gogreentravelgreen.com/green-transportation/the-best-search-engines-for-non-stop-flights-25-days-of-green-travel-day-8/

**TO FIND GREEN RENTAL CARS:**
- www.greenyour.com/transportation/car/car-renting/tips/drive-a-green-rental-car?subject=5941&category=9473

**TO FIND PASSENGER TRAINS AND INTERCITY BUSES:**
- www.greenyour.com/transportation/travel/air-travel/tips/travel-by-train-or-bus?subject=5941&category=9473

**FOR INFORMATIN ON ONLINE MEETINGS:**
- https://www2.gotomeeting.com/en_US/entry/entry.tmpl

**FOR INFORMATION ON INTERNET TELECONFERENCING:**
- www.skype.com/

# WASTE/RECYCLING

## How do we *love all of the children of all species* for all time?

**– William McDonough,** one of the leading thinkers on sustainability

The famous phrase "reduce, reuse, recycle" takes on new meaning in the 21st century. Natural resources are getting harder to extract from the earth while the world population is skyrocketing. If we can find second-uses for what we throw away, not only will this help our efforts towards living sustainably with the world's resources, but it will also create new revenue streams for businesses to thrive.

A comprehensive waste-reduction strategy can provide substantial financial benefits by reducing the amount of materials that are purchased in the first place. This has the trickle-down effect of minimizing the associated real estate and energy costs that are needed to store and transport these

excesses. Recycling has numerous environmental benefits: it conserves our valuable natural resources, it saves energy, it saves clean air and water, and it saves landfill space.

It may take some work to implement a waste and recycling strategy for your organization, but the financial and environmental benefits will be worth the effort. You may have to conduct waste audits, engage and educate employees, work with vendors, and set up a reporting system for your waste to identify cost-effective waste-reduction opportunities. Remember, the goal is to create a comprehensive waste strategy that, once implemented, will save you both time and money.

## Interview with Kara Thompson at Homeownership Center of Sacramento

After the Homeownership Center of Sacramento's Green Audit in October 2008, the company now has a contract with the city for a recycling program. Someone picks up the recyclables once a week from the 80-gallon bin that is placed in the office and takes it to be recycled.

**Q: Why did you choose to implement this program?**

A: We decided to start this recycling program to be a more environmentally conscious office. Now, all of our boxing is recycled, and the entire office is involved: all employees have individual recycling bins at their stations.

**Q: What do the employees think?**

A: We have seen a good response from our employees. We all have neater desks now, as we use paper shredders to reduce clutter. At first, a lot of people were recycling items that were not recyclable. We solved the problem by going to the city's website to clarify the recycling guidelines. Posting signs to set awareness was really helpful in getting the proper items recycled. (Energy consciousness is another ongoing employee awareness issue. Each month, the office's energy use is posted in a conspicuous place in the office, visible to all employees.)

**Q: Was anything easier than you anticipated?**

A: Having the city come in to take care of our recyclables is great. This program is actually "goof proof," for there is someone that takes care of the recycling once it is separated within the office.

**Q: What advice would you give another NeighborWorks organization thinking about undertaking a project like this?**

A: Contact your local city services and see if they offer any similar programs. Ours is $11 dollars a month, and is definitely worth it. Do your research, and you will find viable options for your office.

**Q. What's next on your green agenda?**

The office is trying to conservatively use our in-office resources, reducing as much waste as possible. The kitchen no longer has paper plates and plastic silverware to minimize the use of disposable goods in the office. The office is aimed at incorporating green practices into as many aspects of the office as possible. Next on the agenda: the office is planning on forming a committee to take lead on some green initiatives.

## 10 Steps to Success

1. **Remember all parts to the phrase:** Reduce, Reuse, and Recycle. Most people just do the last one: recycle. Reducing your consumption should be a first step. Reusing what we can is a second step, and only as a final step, we should recycle that which we want to get rid of, to give our waste a second life. For example, eliminating water bottles and investing in water filtration devices is a much better option, both financially and environmentally, than recycling water bottles.

2. **Know your local recycling rules.** Read up on the recycling rules for your area so that you will know what you can and can't recycle. Each city has its own guidelines and rules. The key is to know what your city will accept, and then base your official recycling policy on that or to find a private recycling center to work with if your city's program is lacking. To find your local recycling centers, visit http://earth911.com/.

3. **Create a documented, official waste/recycling program.** The common flaw in most waste management programs is that they are not documented organization policies. Instead, they are unofficial and undocumented. As a result, only a handful of employees recycle on a regular basis. Usually only the kitchen or copy center has receptacles for recycled waste, and more often than not these receptacles are only for paper or cans. Once your policy is established, live it. You will probably want to assign a recycling coordinator who leads and manages these efforts. Every common area should have all the appropriate waste receptacles, as should each office or cubicle. Check out http://business.earth911.com/green-guides/workplace-recycling-program-guidelines/.

4. **Buy recycled products.** Recycling not only allows you to put your materials back into use for someone else, it also encourages you to support the process by buying recycled products. Examples include 100% recycled printer paper and office chairs. Companies are starting to buy and sell their used office equipment. Oftentimes, this can be a great option as this equipment is usually in great condition and much cheaper.

5. **Recycle your wate**r (see gray water and/or rainwater harvesting in green building section).

6. **Compost your food waste and greenery.** Compost is quite a basic and effective recycling method. It reduces landfill waste while creating great soil for landscapes. You can buy small compost bins for kitchen areas that are odor-free which you can empty daily into your outdoor compost bin or allocated compost area in your landscape. Many waste companies are starting to issue large garden waste compost bins for collection. If you are willing to manage your own, you can get a worm bin that will break down your compost into nutrient-rich soil (www.compostguide.com).

7. **Recycle your electronic equipment** (see section below on IT waste). Electronics recycling is becoming more common in many urban areas. There are a number of non-profit organizations that will take computer parts and turn them into working computers for others. Companies like Ebay have also developed programs to help your electronics find new homes. If you have a major appliance that doesn't work and you'd rather replace it than try to fix it, offer it to local repair shops, trade schools, or hobbyists. Many cities now offer hazardous waste recycling days when they will take not only hazardous waste, but electronics. Battery recycling is easy to find where electronics are sold.

8. **Buy products that are upgradeable.** If you are buying new products, try to buy models that will be able to be upgraded instead of thrown away. Anticipate the recycling loop! Also, try to find second uses for packaging if possible.

9. **If you don't need something, donate it or use a specialist!** There is no shortage of charities that need your stuff, such as the Goodwill (www.goodwill.org). Groups like Freecycle (www.freecycle.org) and Recycler's Exchange (www.recycle.net/exchange) exist to help you get rid of your stuff. Make it a rule that nothing useable goes in the trash until you've given the community a fair shot at it. There are also third-party specialists that will sell your stuff for you, donate it, or connect you with interested organizations that want to buy it from you. For an example, check out www.ireuse.com.

10. **Conduct a waste audit.** To better understand the kind of materials that enter and leave your building, consider conducting a waste audit (www.p2pays.org/ref/01/00707.pdf). Set a span of time like a week or a month, and separate your waste categories. Weigh the different kinds of material flows that go out the door (landfill waste, organic compost, aluminum, recyclable plastic, reusable material, etc.) For a waste assessment form, visit: www.earth911.org/library/brrc/pdf/WasteAssForm.pdf. Design a "material recovery" program that minimizes the amount going to the landfill. Most companies pay to have their trash hauled away and can get money for recycled paper, containers, toner cartridges, corrugated cardboard—among others. You might want to seek out a recycling audit through your local waste management company. Waste Management's WM Recycle America division conducts audits that will to maximize the value of your company's trash in order to reduce your costs and increase your revenue (www.recycleamerica.com/services/audits.asp).

## You Might Like...

- Earth 911's Recycling Location Finder and for a comprehensive overview of creating a waste & recycling program: http://business.earth911.com/

- Waste Management's fun and interactive website, www.thinkgreen.com

- Green Uses for Waste, a U.K.-based website with lots of information about how to reduce, reuse, and recycle your waste: http://www.greenusesforwaste.co.uk/

- Join a local group to give and get stuff: www.freecycle.org

- "The Cycle", a YouTube series on the process of recycling: www.youtube.com/watch?v=gkQvN2ExjUY

## Waste and Recycling by the Numbers

- The U.S. consumes more than its fair share; with less than 5% of the global population, we use about a quarter of the world's fossil fuel resources—burning up nearly 25% of the coal, 26% of the oil, and 27% of the world's natural gas.

- In a lifetime, the average American will throw away 600 times his or her adult weight in garbage – leaving a legacy or 90,000 pounds of trash for his or her children.

- Recycling a ton of 'waste' has twice the economic impact of burying it in the ground. In addition, recycling one additional ton of waste will pay $101 more in salaries and wages, produce $275 more in goods and services, and generate $135 more in sales than disposing of it in a landfill.

- The US EPA estimates that 75 percent of our waste is recyclable, which goes well beyond what you toss in your recycling bin at home or in your office.

## Spotlight on IT Waste

The average lifetime of a personal computer is five years. An estimated 24 million computers reached the end of their first life in 1999; only 14% of those were recycled or reused. The rest are stored in warehouses or end up in our landfills, and can leak toxic wastes into the ground. We can minimize the environmental impact of our electronic wastes if the components are recycled and reused.

The value of a recycled computer is low and the cost to get rid of it still remains high, so recycling a computer should be your last resort. You should always consider reusing the computer or upgrading it (if you can find a use for it) as that is the most financially viable option. Donating it for a tax break also makes good financial sense.

If you have to recycle your IT waste (computers, printers, faxes, cell phones, etc.), find a local organization that will do it in a responsible way. There are three general options (after giving away components to employees for their personal use):

1. *Contact hardware vendors responsible for recycling and disposal. For example, both Sun Microsystems and Microsoft sponsor active recycling and reuse programs designed to keep electronics out of the waste stream. At Sun, customers can participate in the company's hardware upgrade program, where they can return end-of-life equipment at no cost. Sun then ships the equipment to a third-party vendor, which dismantles the equipment and returns any useful parts to Sun. Most major hardware vendors have some sort of take-back program, and many will pay for shipping at no cost to you.*

2. *Some big box retailers (such as Best Buy) have instituted IT drop-off centers. Contact your local store to ask about any programs (and about the cost). Programs vary by location.*

3. *Work with a local e-waste recycler, who will arrange to pick up old equipment.*

## Additional Resources

- Waste Management – www.wm.com, www.recycleamerica.com, www.thinkgreen.com
- National Recycling Coalition - www.nrc-recycle.org
- HP Product Recycling - www.hp.com/hpinfo/globalcitizenship/environment/recycle/
- Green Biz on Computer Recycling - www.greenbiz.com/resources/resource/computer-recycling
- U.S. EPA on Wastes - www.epa.gov/epawaste/index.htm, www.epa.gov/epawaste/wycd/office.htm
- Earth 911 - http://earth911.com/, http://business.earth911.com/
- American Chemistry on Plastics - www.americanchemistry.com/s_plastics/sec_learning.asp?CID=1102&DID=4256
- National Association for PET Container Resources (NAPCOR) - www.napcor.com/
- Solid Waste Association of North America (SWANA) - www.swana.org
- Planet Green - http://planetgreen.discovery.com/go-green/recycling/recycling-basics.html
- Recycle Bank - http://recyclebank.com/
- The EPA's eCycling page: www.epa.gov/epawaste/conserve/materials/ecycling/index.htm

# GREEN BUILDING

Green building is the practice of *increasing the efficiency with which buildings use resources* — energy, water, and materials — while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance, and removal.

**– The Urban Land Institute**

Buildings are perhaps the most underestimated part of the carbon footprint equation. Our built environment has a huge impact on our resources and climate change.

Considering these statistics, reducing the amount of natural resources that buildings consume and the amount of pollution emitted is crucial. Buildings have a very long lifespan, so anything that we can do to reduce their impact will have profound effects on our natural environment, economy, health, and productivity.

Implementing green building techniques does not have to be as expensive as you might think. Small improvements (e.g. caulking windows/doors) can save substantial resources and reduce energy costs. If you have the capital, a major green building renovation (e.g. new HVAC system) or new construction project may cost you slightly more upfront, but will pay itself off handsomely in reduced operating costs, enhanced worker productivity, and giving you the good feeling that you are doing your part to help alleviate your impact on the environment (as well as marketing opportunities).

The choice is yours. Buildings can either have a positive effect or a negative one on our environmental and social well-being. The ultimate goal is a net-zero energy building that produces as much energy onsite as it consumes and is both aesthetic and fun to be in and around.

**According to the US Green Building Council, buildings in America account for:**

- 72% of electricity consumption,
- 39% of energy use,
- 38% of all carbon dioxide ($CO_2$) emissions,
- 40% of raw materials use,
- 30% of waste output (136 million tons annually), and
- 14% of potable water consumption.

## Did you know?
On average, Americans spend about 90% of their time indoors.

## Getting Started

A good place to start with green building is to do some research into existing standards. While green building does not require that you get your building certified, these standardized rating systems can be very helpful in providing a roadmap for your greening initiatives. Following are two programs (visit www.allgreenratings.com/certifications for a comprehensive list) that are worth looking at:

- *LEED (Leadership in Energy and Environmental Design), developed by the U.S. Green Building Council (www.usgbc.com), is the nationally accepted benchmark for the design, construction and operation of high performance green buildings. Using a whole-building approach to sustainability, LEED recognizes performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. To find a LEED AP (Accredited Professional) in your area, visit www.gbci.org.*

- *ENERGY STAR (www.energystar.gov) is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices. Americans, with the help of ENERGY STAR, saved enough energy in 2007 alone to avoid greenhouse gas emissions equivalent to those from 27 million cars — all while saving $16 billion on their utility bills. Certification focuses just on energy-efficiency and is cheaper and easier to obtain than LEED. Check this one out!*

### Benefits of Green Building

**ENVIRONMENTAL BENEFITS:**
- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste
- Conserve natural resources

**ECONOMIC BENEFITS:**
- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

**HEALTH AND COMMUNITY BENEFITS:**
- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life

You might want to start with an energy audit (see energy efficiency section) to see where you might be able to quickly save money. A green building consultant or LEED accredited professional can also be useful in this first stage. As always, forecast the expected annual savings and costs for each potential investment. Prioritize those investments that are going to bring you the quickest environmental, economic, and health benefits!

Remember that your improvements might qualify you for tax rebates, zoning allowances and other incentives (e.g. energy mortgages) in hundreds of cities. Numerous sources of funding for green building are available at the national, state and local levels for homeowners, industry, government organizations and nonprofits. The EPA has a great page of links at: www.epa.gov/greenbuilding/tools/funding.htm.

### You Might Like...

- A great overview on green building, made by the famous Rocky Mountain Institute, visit: http://bet.rmi.org/video/feature.html
- To learn which strategies deliver the biggest paybacks and discover ways to get your project noticed: www.nrdc.org/buildinggreen/default.asp
- One of the most comprehensive introductions to green building at: www.commonfire.org/community/greenwelcome.html

# Low-Cost Green Building Strategies

While getting your building LEED platinum-certified might be beyond your budgetary constraints, there are smaller steps you can take that will be cost efficient and deliver you the fastest return on your investment. Here are some quick tips that don't cost much to implement and pay big in returns.

### SITE PREPARATION & LANDSCAPING

**Protect and retain existing landscaping and natural features.** Select plants that have low water and pesticide needs, and generate minimum plant trimmings. Native plants are the best choice because they will survive without extra watering. Use compost and mulches. Use recycled-content paving materials and furnishings. Consider permeable paving or packed gravel for parking lots instead of concrete or asphalt that will allow water to go back into the soil and replenish ground water. All of these strategies will save substantial water, time, and resources, while keeping your landscape looking great.

### ENERGY AND ATMOSPHERE

**Weatherize your building: plug gaps where heat is escaping.** This is the first action that building owners should take to combat high energy costs. Although the leaks may be small, they can collectively add up to big energy losses! Install weather-stripping around exterior doors and along thresholds. If the gap at the bottom of the door is high, install a door sweep. Use expanding foam to seal gaps around pipes that enter your building from the outside. Check the joints and insulation on the ducts of your heating/ventilation/air conditioning system. Fix any leaks with mastic sealant. Make sure your water heater is insulated properly with an insulation jacket. Use light colors for roofing and wall finish materials for a low-albedo value to reduce solar heat gain. *Potential Savings:* On average, weatherization reduces heating bills by 32% and overall energy bills by $358 per year, according to the Department of Energy.

**Use great insulation and windows.** Hands down, effective insulation is one of the most cost-effective and dramatic ways you can increase the energy-efficiency of your building. Install high R-value wall, ceiling, and floor insulation. Try to get your attic insulation up to R-50 and walls to R-30. Consider using cellulose, which is less harmful, made of 85% recycled newspaper, and has great insulating properties. Install high-efficiency double or triple-pane windows with a low E-coating (see www.efficientwindows.org/lowe.cfm). Use minimal glass on east and west exposures, and more on south. *Potential savings:* According to the Department of Energy, inefficient windows and doors cost Americans $40 billion each year in higher utility costs and waste as much energy as the US gets from the Alaska Pipeline.

## Did you know?

In the book "Natural Capitalism", Amory Lovins reveals that up to 50% of heating & air-conditioning gets wasted due to leaky ducts. Having a contractor seal ducts with "aeroseal" eliminates over 90% of duct leakage yielding about 30% return on investment.
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**Install skylights and incorporate natural light.** Passive design strategies - orienting windows, walls, awnings, porches, and trees to shade windows and roofs during the summer while maximizing solar gain in the winter - can dramatically affect building energy performance. *Potential savings:* Natural daylight harvesting can be a great way to reduce energy bills and studies have shown that it also has a positive impact on productivity and well-being.

**Provide adequate ventilation and a high-efficiency, in-duct filtration system.** Heating and cooling systems that ensure adequate ventilation and proper filtration can have a dramatic and positive impact on indoor air quality. Prevent indoor microbial contamination through selection of materials resistant to microbial growth, provide effective drainage from the roof and surrounding landscape, install adequate ventilation in bathrooms, allow proper drainage of air-conditioning coils, and design other building systems to control humidity. *Potential savings:* a more comfortable work environment will lead to greater productivity and well-being.

**Install geothermal heating and cooling (see Renewable Energy Section).** A geothermal system uses the earth's constant underground temperature to heat and cool your home, as well as your hot water. *Potential savings:* 50% less energy to heat your organization and about 25% less to cool it.

**Consider installing solar panels (see Renewable Energy Section).** After you have made your building energy efficient, consider furthering your energy mix with solar PV. Solar water heating can further reduce energy loads as well. *Potential savings:* Since power generation is the most expensive feature to add to a building, a renewable energy investment can be a great long-term investment, particularly if you own the building.

**WATER EFFICIENCY**

**Install high-efficiency toilets, waterless urinals, low-flow showerheads and other water conserving fixtures.** High-efficiency toilets (using only 1.28 gallons per flush) – look for the WaterSense label (www.epa.gov/watersense) – and waterless urinals (www.falconwaterfree.com) are a great first step towards water conservation measures. They are fairly cheap and will reap substantial long-term savings. Additionally, many water utilities offer rebates and vouchers for these products. Low flow aerators on all faucets are also a must. *Potential Savings:* EPA estimates that replacing an older toilet with a WaterSense labeled model will, on average, save more than $90 per year in reduced water utility bills, and $2,000 over the lifetime of the toilets as well as save 4,000 gallons per year.

**Use state-of-the-art satellite-enabled irrigation controllers and self-closing nozzles on hoses.** This great technology allows some of the fastest ROI of any water technology if your office has outdoor landscaping needs. Using satellites to get accurate real-time weather such as humidity, wind, and rainfall, and other information specific to the plant and soil type, landscapes are never over watered. *Potential savings:* ROI for these systems is usually about 1-2 years (To calculate your savings, visit www.weathertrak.com/savingscalc/index.php).

**Think POU (point-of-use) for hot water and filtered water.** Recirculating hot water heating systems are great devices that can save substantial water and gas; you simply press a button and have hot water on demand where you need it instead of waiting minutes for the hot water to arrive at the tap. Likewise, filtered water at the POU can save water and energy. *Potential savings:* These systems are easily installed and cost less than $400, paying off quickly in energy and water saved.

**Install a gray water or rain water harvesting system.** Gray water is any water that has been used in a building, excluding toilet water. Dish, shower, sink, and laundry water comprise 50-80% of residential "waste" water. This water can be recycled for landscape irrigation or for toilets. A dual plumbing system will need to be installed to redirect second use water into your toilet or for irrigation. Note: at the moment, building codes for gray water can be excessively complicated, however they are changing; many systems are not installed to code (http://www.greywaterguerrillas.com/). Also, check out recycling systems direct from sink to toilets. Rainwater harvesting is simply catching the rain from your roof and redirecting the water either into a cistern or directly into your landscape for irrigation (www.harvesth2o.com). *Potential Savings:* depending on the size, these systems will usually pay off within 1-2 years.

# Case Study: NHS New Haven

| Green Project | Green Building |
|---|---|
| **Description** | The company began implementing green building practices to reduce homeowner's energy expenses. NHS New Haven is implementing damp cellulose insulation, ceramic radiant barrier paint, all CFL lighting, and new ENERGY STAR windows. NHS New Haven is reusing as many existing materials and finishes as are practical. |
| **Green Benefits** | Community "green" advocates are satisfied that steps have been taken in the right direction, and others in the community are eager to see what they have done. |
| **Advice to other NeighborWorks organizations** | Take the green building initiative as an opportunity to become experimental: take steps that you can, as soon as you can.  Do not become paralyzed by endless analysis and study. The least glitzy is often the best thing to do. For example, improving the insulation is most often the best use of limited funds, and produces lasting benefits. |
| **Next on the Green Agenda** | Expanding the use of damp cellulose building insulation. |
| **Remember!** | Even though these examples are about new buildings for homeowners, you can apply these lessons to your own administrative offices! |

## Additional Green Building Considerations

Use non-toxic materials. Choose construction materials and interior finish products with zero or low emissions to improve indoor air quality. Many building materials and cleaning/maintenance products emit toxic gases, such as volatile organic compounds (VOC) and formaldehyde. These gases can have a detrimental impact on occupants' health and productivity. Buy no-VOC or low-VOC paints, sealants, and carpets. Recent studies reveal that buildings with good overall environmental quality can reduce the rate of respiratory disease, allergy, asthma, sick building symptoms, and enhance worker performance. To find non-toxic materials, visit www.healthybuilding.net.

Use sustainable construction materials and products and buy locally. Look out for products that have the following qualities: reused and recycled content, sustainably harvested materials, high recyclability, durability, longevity, and local production. Examples include: fly ash for concrete, recycled glass tiles, and bamboo. Always try to buy sustainably forested woods and lumber that are FSC-certified (www.fsc.org). Using these products not only promotes resource conservation and efficiency, it also develops markets for such materials that otherwise might go into our landfills.

When upgrading your office space, reuse and recycle construction and demolition materials, and use dimensional planning. It's a good idea to require plans for managing materials through deconstruction, demolition, and construction. For example, using inert demolition materials as a base course for a parking lot keeps materials out of landfills and costs less. Dimensional planning involves reducing the amount of building materials needed to cut construction costs. For example, design rooms on 4-foot multiples to conform to standard-sized wallboard and plywood sheets. Be sure to plan for dedicated areas to important processes such as composting and recycling.

Remember to test and maintain your building! Ensure that all of your green building initiatives are working properly and maintain them. This includes instructing staff on the operation and maintenance of equipment.

### Do you rent your office space?

If you don't own the building but still want to be in an eco-friendly building, look out for buildings that are certified; LEED, EarthCraft, and Energy Star are good ones to look out for. You can also search for buildings in your area at:

http://www.energystar.gov/index.cfm?fuseaction=labeled_buildings.showBuildingSearch

## In a Historic Building?

According to Mike Jackson, chief architect of the Illinois Historic Preservation Agency, it helps to divide the building up into three levels of historic value or heritage: the front (entrance, exterior, and original windows, etc.), the secondary zone (the sides and back of a house where materials can be replaced if necessary), and the third zone (invisible to the outside world such as basements and attics where alterations don't affect the appearance).

Begin renovating in this third zone first with a focus on energy efficiency. Sometimes there is sufficient space to pump insulating foam or cellulose into the chambers behind plaster walls, for instance. If the finish is outstanding, it might be better to find other ways of conserving energy.

In the basement, pay particular attention to the sill plate, the point where the frame meets the foundation, a notoriously leaky point in old houses; use caulk and expanding foam where possible.

An energy audit can really help pinpoint trouble spots using infrared photography and/or a blower door test, in which a powerful fan inside the house is used to test for leaks. "Occupiers of historic homes can cut 25 to 35 percent off their heating bills by doing an energy audit, then insulating attic and basement," says Jim Cavallo, an energy auditor and associate editor of Home Energy magazine. This can cost between $350 and $500 for an energy audit, depending on house size.

*Read more at http://historichometeam.com/blog/historic-home/green-restorations-of-historic-homes/.*

## Additional Resources

- Comprehensive list of green rating systems, visit: www.allgreenratings.com/certifications

- U.S. Green Building Council - www.usgbc.org

- Environmental Protection Agency section on Green Building - www.epa.gov/greenbuilding/

- More statistics on the built environment in the U.S.: www.usgbc.org/ShowFile.aspx?DocumentID=3340 or www.epa.gov/greenbuilding/pubs/gbstats.pdf

- California Integrated Waste Management Board Green Building section provides a good overview of green building including grants and toolkits - www.ciwmb.ca.gov/greenBuilding/

- National Association of Home Builder's Green, including a project scoring tool - www.nahbgreen.org

- The Green Building Initiative - www.thegbi.org

- Build it Green - www.builditgreen.org

- Green Build 365 Education Resource – www.greenbuild365.org

- Green Building How-To videos - www.hgtvpro.com/hpro/green_building/

- Building Green - www.buildinggreen.com

- Gray Water Information - www.graywater.net

- Green Building - www.greenbuilding.com

- Green Builder Sourcebook - www.greenbuilder.com/sourcebook/

- Oikos Green Building Source - www.oikos.com

- Construction Carbon Calculator helps determine the environmental impact of your project - http://buildcarbonneutral.org/

- Energy Star Building Upgrade Manual - www.energystar.gov/index.cfm?c=business.bus_upgrade_manual

# Case Study in Eco-Friendly Landscaping:
# Community Housing Partners, Christiansburg, VA

Community Housing Partners (CHP) is located in the rural southwest region of Virginia in the small town of Christiansburg. Its offices are located in a stand-alone building surrounded by grass and shrubbery on two sides. Not content with simply greening their affordable housing properties, CHP has taken the step of creating a wildlife habitat on its own office property. CHP followed the four steps outlined by the National Wildlife Federation (NWF) for creating a Certified Wildlife Habitat:

1. Providing Food for Wildlife. Planting native plants (such as forbs, shrubs, and trees) or hanging feeders in safe places are two easy ways to "go green" and create a welcoming atmosphere for wildlife.

2. Providing Water for Wildlife. Clean water is used by wildlife for drinking, bathing, and reproduction. Habitats can provide water through natural sources (such as ponds, springs, and wetlands) or through manmade features (such as bird baths, puddling areas, and rain gardens).

3. Providing Place for Cover. Wildlife require places to hide in order to feel safe from people, predators, and inclement weather. Using native vegetation (such as shrubs, thickets, and brush piles) or other "natural" hiding places (such as logs or rocks) makes your wildlife visitors feel safe!

4. Gardening in an eco-friendly way. Sustainable gardening techniques (such as mulching, and reduced lawn areas) have a positive effect on soil, air, and water health—and make a safe and healthy place for wildlife.

In addition to providing an attractive setting for the building, NWF notes that a wildlife habitat also has the following advantages:

1. It's fun! Watching wildlife in action can be fun and relaxing for everyone. Your habitat may attract beautiful songbirds, butterflies, frogs, and other interesting wildlife for viewing from your very own window.

2. Curb appeal! Replacing grass lawns with native wildflowers, shrubs, and trees will increase the beauty of your property and provide a nurturing refuge for wildlife.

3. Bring wildlife home! Restoring habitats where commercial and residential development have degraded natural ecosystems can be your way of giving back to wildlife.

4. Eco-friendly! Gardening practices that help wildlife, like reducing the use of chemicals, conserving energy and water, and composting also help to improve air, water and soil quality.

5. Community! Gardening for wildlife can help you share your love of wildlife with your neighbors and help them get involved in creating a home for wildlife.

Learn more about creating a wildlife habitat on your office property by visiting the National Wildlife Federations website at www.nwf.org. Their website has lots of helpful hints – from which native plants are best in your state to tips for sustainable gardening

# Case Study in LEED Certification:
# Corporate Headquarters Building,
# Housing Resources of Western Colorado
# in Grand Junction, CO

**Who is leading your green building initiative in your organization?**

Daniel W. Whalen, Executive Director, Elizabeth Rowan, Development Director, and Eldon Krugman, Energy Consultant are the three staff members pursuing LEED-EB Certification for the Administrative Headquarters for Housing Resources of Western Colorado.

**When did you begin thinking about getting your administration building LEED certified?**

Daniel W. Whalen and Eldon Krugman attended a LEED training program in January 2006. LEED-EB Guidelines were still under development at that time. Housing Resources of Western Colorado contacted Lancer J. Livermont, AIA, LEED AP in February 2008 to see what was involved in gaining certification for an existing building. The initial meeting with Lancer took place on March 7, 2008. We then worked to develop a budget for the project based on Lancer's input. Elizabeth Rowan submitted a grant application to NeighborWorks America in September 2008, and we put the project on hold until we learned that we were successful in receiving funding.

**What has the process for LEED certification been like?**

Entering a journey with an uncharted path was exciting and frightening. Leadership plays a crucial role; requiring sufficient financial resources, a thorough understanding of the mission and the resolve to complete the mission. Our navigator, Lancer J. Livermont, will play an important role in solving previously unknown circumstances we will encounter during implementation and certification. The LEED checklist examines ALL aspects of impact from buildings, occupants, and resources required to maintain and operate business environments. The knowledge gained from this experience elevates one's consciousness on a daily basis.

**Why did you think that LEED certification was a good option to pursue?**

Founded in 1977, our "Mission Statement" at Housing Resources is "To provide affordable housing and to promote the wise and sustainable use of resources." A third-party verification that we demonstrate the very principles we espouse is important to our community, Board of Directors and Staff.

**What was the cost premium for getting LEED certified?**

Our estimated budget for this project is $60,000.

**Where are you in the process?**

We registered our building in June 2008 and are currently in the assessment and inventory phase. We expect to begin implementation in late March, complete implementation in June 2009 and begin the 90-day certification process in July 2009.

**What have employees said/thought about LEED?**

When we initially suggested the idea, employees were skeptical about cost and unknown operating systems that would be required. However, by involving them throughout the process and gaining their input as to achievable goals, they have begun to accept the process and are assisting in the development of new and changed operational policies. Heat recovery ventilators will yield a healthier work environment, hence healthier employees.

**What have clients/community/partners said about your LEED certification?**

Housing Resources currently owns our building and rents space to five other tenants. Initial contact was made with these tenants in face to face meetings during which LEEDS certification was discussed. All of our tenants are enthusiastically embracing our efforts.

**What benefits are you expecting to see? How soon?**

Converting from mechanical lighting ballasts to electronic lighting ballasts will reduce electromagnetic fields and eliminate ballast hum. Super T-8 fluorescent bulbs will replace T-12 fluorescent bulbs, achieving an immediate reduction in mercury content in addition to a projected sixty percent reduction in lighting energy use and cost; from roughly $500 per month to $200 per month! Housing Resources purchases 1500 kwh/month from Xcel Energy's Windsource Program, electricity generated from windfarms. After the lighting upgrades are complete, we expect to achieve the 75% Green Energy threshold for electrical energy. We also expect to reduce our treated water use by 200,000 gallons per year, an eighty percent reduction, utilizing irrigation ditch water for turf grasses and replacing 3.5 gallon per flush toilets with low water, dual-flush toilets. Heat recovery ventilation should improve the indoor air quality within the building and we hope to achieve more employee comfort and less employee absenteeism. Improved waste stream policies and procedures should reduce monthly trash fees and produce additional recycling.

# Case Study in Eco-Friendly Landscaping:
# Affordable Housing and Educational Development (AHEAD), Littleton, NH

*"AHEAD's use of environmentally friendly landscaping is an integrated part of our incorporating Green Building Practices in our developments. Using native species that need little or no watering, local mulches help create a landscape that is both pleasing to the eye and easy to maintain. Not every supplier carries native species, but they are not to hard to find in our area."*

**– Construction Specialist,** AHEAD, Inc.

Although using native plants is not the only suggested way of greening your landscape practices, it is important and an effective way to help the environment. Below are benefits to going native:

- Native plants do not require fertilizers.

- Native plants require fewer pesticides than lawns.

- Native plants require less water than lawns - in urban areas, lawn irrigation uses as much as 30% of the water consumption on the East Coast and up to 60% on the West Coast.

- Native plants help reduce air pollution - natural landscapes do not require mowing: one gas-powered lawnmower emits 11 times the air pollution of a new car for each hour of operation.

- Native plants provide shelter and food for wildlife.

- Native plants promote biodiversity and stewardship of our natural heritage.

- Native plants save money - A study by Applied Ecological Services (Brodhead, WI) of larger properties estimates that over a 20 year period, the cumulative cost of maintaining a prairie or a wetland totals $3,000 per acre versus $20,000 per acre for non-native turf grasses.

*Source: http://www.epa.gov/greenacres/nativeplants/factsht.html#Native%20Plant*

Want to learn more about eco-friendly landscaping? Check out the following resources:

- http://www.epa.gov/epawaste/partnerships/greenscapes/howto.htm

- http://www.epa.gov/greenkit/landscap.htm

# PAPER USE

Most of the world's paper supply, *about 71 percent, is not made from timber harvested at tree farms* but from forest-harvested timber, from regions with ecologically valuable, biologically diverse habitat.

Reducing paper use in the office reduces clutter, saves natural resources such as water and trees, and can enhance your bottom line. With the average employee wasting around 6 pages a day, costing 6 cents each, it is both eco-conscious and economically savvy to start improving your paper efficiency. Implementing scanning, electronic faxing, and duplexing capabilities in addition to purchasing post-consumer recycled paper can kick start your office's green paper use initiative.

## Paper Efficiency: To Duplex or Not to Duplex

Reducing the amount of paper needed in order to perform a specific task is called paper efficiency. In order to improve paper efficiency, less paper is used to accomplish the same task. Some copy machines have the ability of making duplex copies, that is, copying onto both sides of the paper. Most copies today are still single-sided.

Duplexing copies that are now single-sided is one means of increasing paper efficiency. Another means of enhancing paper efficiency is using the reduction feature of the copier, putting two original pages on each side of the paper. The utilization of duplexing and the reduction feature can reduce paper use by 75%. It is important to note that the paper itself is not usually wanted, it is the service it helps provide. Recyling paper and using recycled content paper do not affect the amount of paper used, thus are not examples of paper efficiency.

## Paper Purchasing: Choose the Right Kind

Purchase paper that is environmentally preferable, such as paper that is certified to sustainable forestry standards from organizations like the Forest Stewardship Council (FSC). Also, look for the highest percentage of post-consumer content when buying paper. Post-consumer signifies the amount of waste paper collected from consumers and reprocessed. The higher the percentage, the better. Switching to 100 percent post-consumer recycled paper uses up to 70 percent less energy than virgin paper, while using less natural resources.

Recyclable      Made from Recycled Materials

## Paper Use by the Numbers

- 1 ton of paper = 400 reams = 200,000 sheets
- 1 tree makes 16.67 reams of copy paper or 8,333 sheets; 1 ream (500 sheets) uses 6 percent of a tree
- Average cost of a wasted page $0.06; average employee prints 6 wasted pages a day, or 1,410 wasted pages annually
- 56 percent of people ages 45-54 print pages from the Internet for their archives, and only 33 percent of people ages 18-34 do the same
- Global paper products consumption has increased threefold over the past 3 years and is expected to grow by half before 2010
- The U.S. pulp and paper industry is the second largest consumer of energy, using more water to produce a ton of product than any other industry
- In the U.S. we have lost 95 percent of our old growth forests; 4281 acres of rainforest are lost every hour worldwide
- Production of 1 ton of copy paper produces 5,690 pounds of greenhouse gases, or the equivalent of 6 months of car exhaust
- It takes 10 times more energy to manufacture a single sheet of paper than to create another print or copy

## Paper Recycling

Install bins in several locations in the office to make it easy to collect paper for recycling or reuse. When you buy paper, look for packaging that displays chasing arrows within a circle, which indicates the paper contains recycled content. The symbol is often mistaken for the chasing arrows symbol, which indicates that the product can be recycled.

# Case Study in Eco-Friendly Printing Practices:
## Affordable Housing and Educational Development (AHEAD), Littleton, NH

*"Cover printed on Via Felt, 30% post-consumer fiber using Green-E certified renewable wind-generated electricity. Inside pages are printed on Neenah Environment 100% PCW in accordance with Forest Stewardship Council standards. Soy-based inks are used throughout."*

**– AHEAD 2007 Annual Report**

Inspired by other non-profits, the Resource Development Director at Affordable Housing Education and Development (AHEAD) took the initiative to make the printing of their Annual Report more environmentally friendly. Consulting the organization's printer and graphic designer AHEAD soon discovered that printing with soy-based inks was so common now, that it would be no additional cost to use that method. They balanced the slightly more expensive cost of the paper by cutting back on the number of pages in the report. This allowed AHEAD to stay within budget, print and mail the required number of reports and be environmentally friendly!

AHEAD is currently transitioning to use recycled materials for other pieces (business cards, brochures, etc) as they use up old stocks and need to reorder.

## Tips

First, realize that a paperless office takes time, and recognize that "paperless" often means "less paper."

Think before your print or copy. Preview documents before printing, use the print preview feature to catch formatting errors and blank pages. Promote a "think before you copy attitude." Post reminders near the copiers to encourage double sided copying, "Two-sides are better than one!"

Ensure that you are backing up your files to an outside source such as an external hard-drive.

Eliminate the use of paper calendars and use e-calendars or phone calendars.

Discourage use of paper cups. Encourage staff to bring in their own reusable cups for permanent use.

Install the enterprise version of GreenPrint World. This program examines every print job and allows you to decide what elements to print and which ones to skip. It "tracks your impact," telling you how much paper or ink you have saved. A free version of GreenPrint is also available. If interested, go to https://printgreener.com/enterprise.html

## Going paperless in your office

**Use online banking.** Banks offer online banking in order to manage your finances. By signing up for free online bill payment, you can eliminate the time and cost and time of filling out envelopes and purchasing postage stamps.

**Eliminate mail.** Earth Class MailTM is an online PO Box, Post Office Box, and Mail Forwarding Service that handles all physical mail, and users can have their office anywhere in the world. The service provides its users with an address that can be used as a business mailing address. Customers can view scanned images of their mail on the internet and can decide if they want Earth Class MailTM to email a PDF copy, forward the mail directly, or discard and recycle the mail.

**Make the fax machine obsolete.** The fax machine takes up unnecessary space and is an unnecessary expense. File transfer via e-mail can replace the fax machine, or an online service like eFax is one of many online fax services available.

# Interview with Heather Porter at
# Affordable Housing Education and Development, Inc. (AHEAD),
# a NeighborWorks organization in Littleton, New Hampshire

**Q: When did your "green" paper use initiative start?**

A: We've always recycled. When I came to AHEAD four years ago, we definitely had a system in process. Everyone has a recycling bin at their desks, and two years ago we installed scanners to utilize scanning capabilities to reduce paper use. We can also fax from our desk with an online faxing program.

**Q: Is your office trying to go paperless?**

A: We're trying to go as paperless as possible. Some federal regulators require paper copies. From a personal aspect, I have reduced around 1/2 of my paper files. I now have just one file drawer. Instead of updating paper files, I just scan it and file the paper onto our server.

**Q: What have the results been?**

A: Since our Green Audit, our default tray of copy paper consists of only recycled paper. Instead of using fresh, clean paper we use paper that has been used once. So far, we're spending about $20 less a month on paper supplies. Also, we use Thin Clients, so about 60% of employees in the office have a monitor and keyboard with remote access to a central sever. It is all wireless, using a fraction of the energy. www.thinclient.net/

**Q: What do employees think?**

A. The employees embrace and love the idea of being more environmentally friendly. After the audit, we turn off the lights more when not in use and turn the computers off at night.

**Q: What benefits have you noticed?**

A: Being environmentally friendly is fun to do with coworkers. We "green police" each other to turn off lights, computers, etc. We also use signs in the office, like, "Watt's on? Turn it off!" Additionally, since our green audit, we utilize natural sunlight more. The changes we needed to make to be more sustainable were mostly changes in habit.

**Q: Were there any obstacles that you encountered?**

A: Now that we are a few months out, people are tending to fall back into their old habits. I compare it to trying to lose weight and keeping the weight off over time, and it's difficult at first. We just continually remind each other once we start to stray from our green habits.

**Q: Was anything easier than you anticipated?**

A: Changing our paper usage, especially with our copy machine default tray was brainless.

**Q: What advice would you give another NeighborWorks organization thinking about undertaking a project like this?**

A: I would highly encourage a Green Audit. Usually there is a cost associated with consultants coming into offices, but reducing our carbon footprint was heavily reliant on us changing our everyday behaviors. We now think more about utilizing natural sunlight, opening the blinds more or even using the desk lamp instead of an overhead light.

**Q: What's next on your green agenda?**

A: We have a volunteer project coming up for NeighborWorks week. We actually want Strategic Sustainability Consulting (SSC) to help us get a mini-green audit started to train volunteers about reducing electricity and their carbon footprint. This is really an outreach effort, especially to shows how easy it is, and it's even better because you save money too!

## Benefits of going paperless, recycling, and duplexing

**Increases accessibility and efficiency in the workplace.** Laserfiche, a software company that helps businesses implement a digital document management system, estimates that using this system creates a time savings of 20 percent, based on filing and retrieval efficiencies as it eliminates misfiling and workflow efficiencies, increases efficiency and enhanced staff productivity, saving up to 6,000 hours annually, or 2.4 full-time staff positions.

**Reduces your environmental impact.** Producing paper from trees requires trees, water, and energy. To make one sheet of paper, it takes over one 1½ cups of water. For every ton (400 reams) of paper used for recycling the savings are: at least 7900 gallons of water and 3000 - 4000 KWh electricity (enough for an average 3 bedroom house for one year), according to Waste Watch. Look at the chart below to see the positive environmental benefit you can achieve each year when you switch to 30% or even 100% recycled paper!

## Average Annual Paper Use for a 25-Person Office (50 reams of paper a month)

| POSTCONSUMER RECYCLED CONTENT | 0% | 30% | 100% |
|---|---|---|---|
| Wood Use | 5 tons | 4 tons | 0 tons |
| Total Energy | 58 million BTU's | 50 million BTU's | 32 million BTU's |
| Sulfur dioxide (SO2) | 39 pounds | 39 pounds | 38 pounds |
| Greenhouse Gases | 8,535 lbs CO2 equiv. | 7,587 lbs CO2 equiv. | 5,373 lbs CO2 equiv. |
| Nitrogen oxides (NOx) | 28 pounds | 26 pounds | 22 pounds |
| Particulates | 19 pounds | 16 pounds | 11 pounds |
| Hazardous Air Pollutants (HAP) | 3 pounds | 2 pounds | 1 pound |
| Volatile Organic Compounds (VOCs) | 8 pounds | 7 pounds | 3 pounds |
| Wastewater | 28,613 gallons | 24,675 gallons | 15,488 gallons |
| Solid Waste | 3,418 pounds | 2,912 pounds | 1,732 pounds |

*Environmental impact estimates were made using the Environmental Defense Fund Paper Calculator. For more information visit http://www.papercalculator.org.*

**Enhances simpicity of storage.** All documents that come into your office can immediately be scanned and electronically stored, making it simple to send them electronically.

**Bolsters security.** A digital document management system stores the documents on secure servers, and only authorized users can retrieve documents.

**Augments economic benefit.** Citigroup, a financial services company, found that if each of its employees used double-sided copying to conserve one piece of paper weekly, the firm would add $700,000 to its bottom line each year. In addition, Bank of America cut its paper consumption by 25 percent in two years, through increasing online reports and forms in addition to increasing email, double-sided copying, and lighter-weight paper

# What's In Your Paper (www.whatsinyourpaper.com)

This web-based tool from the Environmental Paper Network, helps organizations to make better paper choices. It includes a Purchaser's Toolkit - which provides buying guides, model paper policies, a recycling guide and additional resources - and the Paper Steps, and easy-to-understand guide to which paper choices are better, and worse, than others. The toolkit contains links to the following topics:

**GENERAL:**

• WWF Guide to Buying Eco Friendly Paper - together with WWF's Paper Scorecard that assesses the environmental footprint of paper products - provides useful insights and practical tips on what can be done to minimize the negative social and environmental impacts of paper production.

**ENVIRONMENTALLY PREFERABLE PURCHASING GUIDANCE:**

• Gives an overview of the basic steps in starting a system to use paper more efficiently and buy more environmentally preferable paper and paper products.

**THE PAPER STEPS:**

• A visual guide to responsible paper which also lists environmentally preferable papers identified by EPN as meeting its recommendations.

**MODEL POLICY:**

• Contains language to assist purchasers with making a commitment to increasing efficient paper use and procuring more environmentally preferable paper and paper products.

**MODEL LETTER TO SUPPLIERS:**

• Provides purchasers with an example letter designed to inform suppliers about an organization's environmental paper objectives.

**MODEL ENVIRONMENTAL SPECIFICATIONS:**

• Includes specification language to help purchasers procure environmentally preferable paper and paper products.

**PEOPLE WHO CAN HELP YOU SUCCEED:**

• Lists EPN member organizations by sector that can be contacted by purchasers requiring further assistance using the Toolkit.

**WAYS TO SAVE PAPER AND SAVE MONEY:**

• Provides options for using paper more efficiently

**RECYCLING GUIDE:**

• Offers practices to help an organization implement and maintain a successful recycling program.

**PAPER MYTHS AND FACTS:**

• Dispels common myths associated with environmentally preferable paper.

**ADDITIONAL LINKS AND RESOURCES:**

• Lists additional resources for paper purchasers by sector.

# OFFICE PURCHASING

I pledge that *my organization will strive to use its purchasing power* to maximize environmental stewardship, protect human health, and support local and global sustainability.

Implementing a green purchasing program involves the acquisition of environmentally preferable products and services. This includes products with recycled content, bio-based products, energy- and water-efficient products, products using renewable energy, and alternatives to hazardous or toxic chemicals.

According to the EPA, the specific definition of Environmental Preferable Purchasing means "products and services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw material acquisition, production, manufacturing, packaging, distribution, re-use, operation, maintenance, or disposal of the product or service".

## 10 Ways to Green Your Office Supplies

1. Buy in bulk. You will make fewer trips to the office supply store, and if you order supplies in bulk online you can reduce traveling and perhaps get free shipping.

2. Reuse and recycle packaging.

3. Splurge for the warranty. If you are purchasing a new computer monitor or other electronic office supply, warranties enable you to repair your electronics without buying new ones. Less waste is created, and it is likely that the cost of the warranty is less than buying a brand new product in a few years.

4. Refill ink cartridges. It takes one gallon of oil to manufacture one inkjet cartridge. Depending on the type of cartridge, you may get up to 10 uses by refilling the same cartridge, saving up to 75 percent of the cost of a new cartridge. To find refillable cartridges, go to www.theinkjetrefillstore.com/

5. Monitor Paper Use. Think before you print. Duplex and reduce the size of the image to fit more on one side.

6. Set up an Office Recycling Program. The EPA estimates that up to 40 percent of our municipal solid waste comes from businesses.

7. If possible, use laptop computers. ENERGY STAR models use up to 90 percent less energy.

8. Buy ENERGY-STAR appliances, including light bulbs and fixtures, which use at least two-thirds less energy than regular lighting. If you replace incandescent bulbs with fluorescent bulbs, such as compact fluorescent light bulbs (CFLs), they reduce energy consumption and last up to 10 times longer.

9. Buy used furniture. Buying used furniture can be made of good quality, and can be less expensive, keeping another desk or chair out of the landfill.

10. Keep plants in the office, as they absorb pollution.

## Getting Started

To begin switching over to environmentally preferable products, a methodical approach will yield the best results:

1. *Involve everyone in the process from the beginning through to best practices evaluations, you develop consensus for change.*

2. *Understand your needs and analyze the current policies, procedures and products used to satisfy those needs.*

3. *Educate yourselves on alternative products and approaches available.*

4. *Create, implement and support an action plan for change.*

Start by getting all the stakeholders – including management and affected staff – involved in the process of implementing change. Share information with everyone about the importance of switching to "green products". Make sure all impacted employees have input at every stage of the process.

Next, understand the methods you currently have in place for satisfying your identified needs. From small items like light bulbs, power strips, paper & cleaning products to large furniture and fixtures, you need to know the current situation. You must know where you have started to know how to get to where you're going!

As you begin to change over to new products, educate yourself and your staff on alternative products having better environmental attributes. Use the EPA's "Five Guiding Principles" (see inset) when making your purchasing decisions. Stay attentive to potential "greenwashing" – when a product falsely claims to be eco-friendly. Warning signs are labels like "natural" or "organic", without a clear definition or third-party certification. Find a list of sustainable product standards and the logos identifying them: http://mts.sustainableproducts.com/standards.htm

Lastly, as a team create an action plan for change. Determine the systemic changes you will need to make so you can successfully switch from conventional to sustainable products. While using paper with a high recycled content would require little adaptation, new cleaning products get used in a new way. Understand and provide the education users need to ensure buy-in from everyone.

With new products chosen and procedures defined, you can begin phasing out your existing inventory. Arrange for responsible disposal of your existing supplies (often, this involves simply finishing the product) and begin anew!

### Guide to Eco-Purchasing

The EPA developed a framework of Five Guiding Principles to help government employees incorporate environmental considerations into their purchasing decisions:

1. Include environmental factors as well as traditional considerations of price and performance as part of the normal purchasing process.

2. Emphasize pollution prevention early in the purchasing process.

3. Examine multiple environmental attributes throughout a product's or service's life cycle.

4. Compare relative environmental impacts when selecting products and services.

5. Collect and base purchasing decisions on accurate and meaningful information about environmental performance.

*Source: EPA*
*http:// www.epa.gov/epp/pubs/cleaning.htm*

## Purchasing Energy Efficient Equipment: Shoot for ENERGY STAR

ENERGY STAR is a joint program between the U.S. Environmental Protection Agency and the U.S. Department of Energy, aimed at saving money and protecting the environment with energy efficient products and practices. These ENERGY STAR products are energy-efficient computers, monitors, and printers that power down and go to "sleep" when not used in order to save energy, save money on electricity bills, reduce pollution, improve your bottom line and the environment.

If all computers sold in the United States meet the ENERGY STAR requirements, the savings in energy costs would soar to $2 billion annually and greenhouse gas emissions would be reduced by 2 million cars.

Copiers and fax machines are the most energy-intensive type of office equipment, especially when they are left on for 24 hours a day. Copiers with the ENERGY STAR rating use less energy, power down when not in use, and use 1⁄2 the amount of electricity of standard models.

## Purchasing ENERGY STAR light bulbs

ENERGY STAR qualified CFLs use around 75 percent less energy than the standard incandescent bulb, and you save around $30 or more in electricity costs over each bulb's lifetime.  Try and light exit signs with CFLs, light emitting diodes (LEDs), neon lighting or electroluminescent lighting technology. Why?

- *Replacing incandescent bulbs with compact fluorescent lamps typically makes an immediate cost savings of between 50-80 percent, and CFLs last up to 10 times longer.*

- *Over the life span of a fluorescent tube, it will save 640 kWh of electricity in comparison to the equivalent 100-watt standard bulb. Carbon dioxide, a green house gas, is reduced by half a ton and sulfur dioxide, which causes acid rain, is reduced by 3 kg.*

## Important Note about CFLs

Compact Fluorescent Lightbulbs (CFLs) contain mercury, so follow the follow precautions if a CFL breaks in the office:

1. Air out the room: open a window
2. Leave the room for 15 minutes or more
3. Shut off central-forced air heating/air condition system if you have one

**MUNICIPAL GOVERNMENT**
Your local municipality is ultimately responsible for waste disposal. Phone directories often have a "blue pages" directory of local government agencies: try locating the listing for sanitations services. Your municipality may have a drop off location or periodic CFL collections. If the local agency does not have any provisions specifically related to CFL disposal, inquire about safe disposal of mercury or fluorescent tubes.

**RETAILERS**
IKEA is one of the first major vendors to offer a free CFL take-back program. If you bought your CFLs from Wal-Mart, you may want to consider contacting their corporate headquarters to encourage that they establish a company-wide CFL-take back program.

**EARTH 911**
Earth 911 is an online clearinghouse of recycling information for the United States and Canada. Visit their site and enter "CFL" or "mercury" and your Zip code in the "Start Recycling" field at the top of the page. If there is a CFL recycling program or mercury recycling program in your region, it will almost certainly be listed.

**COMMERCIAL SERVICES**
For-profit companies provide CFL and fluorescent bulb disposal by mail. Lightbulbrecycling.com will send you a handy, postage-paid plastic pail, which will hold around 30 CFLs. Just drop your spent CFLs in their well-engineered pail, and call FedEx for pick-up. The downside is that the service is quite expensive: about $120 per shipment.

**STORAGE**
Unless the CFLs are broken or damaged, they will hold their mercury indefinitely. It is possible to store CFLs until you find a proper means of recycling them. Just make sure you store the CFLs in a place that they will not get broken or disturbed.

## Toner and Inkjet Purchasing

Purchasing remanufactured toner and inkjet cartridges offer advantages in cost and waste reduction; and if you choose the right vendor, product quality is not compromised. These products are suitable for use in many printers, copiers, fax machines, and other devices using all-in-one cartridges. In remanufacturing, cartridges are disassembled and defective or worn parts are removed and replaced, and the entire cartridge is cleaned, refilled, and reassembled. Cartridges may be remanufactured repeatedly.

Also check out soy-based ink. Ink manufactured from soybeans is better for the environment and has financial benefits. Soy-based ink has lower levels of volatile organic compounds than ink made from petroleum, and fewer harmful toxins are emitted. The soybean oil produces sharper, brighter colors. Paper is easier to recycle because soybean oil is easier to remove in the de-inking process. Prices are comparable to those for petroleum-based ink, but less soy-based ink is needed per print job.

## Eco-Friendly Office Furniture

It is estimated that U.S. businesses throw away three million tons of furniture annually. Purchasing recycled furniture or refurbishing existing furniture are ways your office can reduce this amount.

There are four types of recycled furniture that you can purchase:

| | |
|---|---|
| **Used** | Often referred to as reused or "as is." Returned to market without repair or cosmetic improvements. |
| **Refurbished** | Touched up or cosmetically improved. |
| **Remanufactured** | Completely upgraded furniture. The product is usually disassembled with parts inspected, cleaned, and then repaired or replaced. It is then reassembled and refinished to "like new" condition. This furniture often includes a guarantee that it will perform just like a brand-new product. |
| **New with recycled-content** | New furniture made with materials, such as metal, plastics, pressboard and fabric that would have otherwise ended up as waste. |

In addition, when you purchase used, refurbished, and remanufactured furniture, you can save 30 to 50 percent in comparison to new furniture. What to look for if you are purchasing new furniture: products with recycled materials, low Volatile Organic Compound (VOC) glues and adhesives, and natural materials such as steel trim/moldings instead of PVC components. The Greenguard Environmental Institute certifies furniture products that do not negatively impact indoor air quality. If buying wood furniture, look for products that are certified by the Forest Stewardship Council, which indicates that the product is manufactured using responsible forestry practices.

## Green Your Office's Bathroom

1. Install CFLs to save energy.

2. Switch to recycled toilet paper and paper towels to save forest destruction. Companies like Seventh Generation sell toilet paper that is made from 100 percent post-consumer (PCW) paper.

3. Install a hand drier instead of using paper towels. According to Rob Gogan, the recycling and waste manager at Harvard University, the total energy use of a hand blow-dryer over its lifespan is less than that of paper towels, for paper towels use a great amount of energy in their production and transportation.

4. Switch to eco-friendly cleaners. See next chapter for more information.

# Case Study: Green Office Supplies

| | |
|---|---|
| **Organization** | NHS Chicago |
| **Green Project** | Paper Use, Office Supplies, Green Cleaning |
| **Date Started** | 5+ years |
| **Description** | The company is using recycled paper, duplex copying, and eFax to reduce their paper use. The office is on its way to be as paperless as possible, with documents being scanned instead of copied. |
| | Electronic time sheets are used, utilizing the computer to clock in and out. All copiers, computers, and light bulbs are ENERGY STAR rated, and all appliances and lights (except emergency lights) are shut off at night. The office also has a programmable thermostat to control the energy use in the office. |
| | All cleaning supplies use environmentally friendly chemicals, and hand towels have been removed from some of the bathrooms in the office to encourage staff to use the existing hand driers. |
| | All furniture in the office is reused, and when NHS Chicago wishes to replace the furniture, they can give it back to the furniture supplier who reconditions it and resells it. |
| **Next on the Green Agenda** | Starting in the next fiscal year, NHS Chicago wishes to implement a recycling program within their office, since one is currently not in place. The office's limited space is a challenge to implement a recycling program, but is definitely next on the agenda. |

## Green Your Office's Kitchen

1. Buy in bulk. Next time you order sugar, creamers, snacks, or beverages for your office's kitchen, buy in bigger quantities. Buying in bulk is often less expensive than food purchased in smaller amounts, and the eco-friendly packaging choice could also save you money.

2. Stop drinking bottled water. Studies have shown that water from the tap is just as good as bottled water—which often comes straight from municipal water systems! If you prefer filtered water, invest a few dollars in a Brita water pitcher, or a filter that fits directly on the faucet. There is no reason to have bottled water in the office!

3. Stock up on reusable water bottles and reusable plates, cups, and silverware. Instead of water bottles, refillable stainless steel, aluminum, or bio-plastic bottles for tap water and other beverages will reduce the use of fossil fuels and greenhouse gases from the production of plastic bottles, most of which end up in landfills.

4. Choose reusable or recycled coffee filters. Environmentally friendly coffee filters can come from hemp, nylon, and stainless steel, which are all tree-friendly materials. Brown paper filters are usually made from recycled pulp and are bleach-free.

## Additional Resources

- Check out "A Resource Guide for Environmentally Preferable Products" for an overview of what "green" purchasing means, and criteria for dozens of basic supplies: www.resourcesaver.org/file/toolmanager/CustomO16C45F77360.pdf.

- Greenbiz also has a similar EPP guide for office products: www.greenbiz.com/files/document/NAGPI-Office%20Equipment-FS_en.pdf

- For more information on ENERGY STAR: www.energystar.gov/index.cfm?c=about.ab_index

- To find ENERGY STAR appliances: www.energystar.gov/index.cfm?c=appliances.pr_appliances

- To find ENERGY STAR computers/notebooks: www.energystar.gov/index.cfm?fuseaction=find_a_product.ShowProductGroup&pgw_code=CO

- For more information of soy-based ink: http://planetgreen.discovery.com/work-connect/recommend-soy-ink.html

- For a complete guide on CFLs and explicit steps on clean up, go to: www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf

# ECO-FRIENDLY CLEANING

Green Cleaning is defined as *cleaning to protect health without harming the environment.* A Green Cleaning program goes beyond chemical and equipment choices. It includes policies, procedures, training and shared responsibility efforts that minimize the impact of cleaning materials on the health of building occupants and protect the environment as a whole.

**– Green Cleaning Network**

Taking steps to create and maintain well balanced local eco-systems can help make your employees and the community you serve healthier and happier. Improving local watersheds by helping to reduce the levels of detrimental chemical contaminants will improve the health of your communities -- the air they breathe, the food they eat and the water they drink. By switching from conventional to "eco-friendly" cleaning products you can start immediately to have a positive impact. To maintain a healthy interior work environment requires keeping interior spaces clean of dust, mold, mildew and germs. Yet turning to cleaning products containing hazardous substance does not improve the office or home environment. These products produce odors and emissions that contribute to other indoor air quality problems of their own. In fact, studies show the air indoors 2 – 5 times as polluted as the space just outside!

## The Problem with Traditional Cleaners

The case for environmentally friendly cleaning products becomes crystal clear when you consider the impact of their excessively used traditional chemical counterparts.

While **disinfectants and sanitizers** may help to halt the spread of infectious diseases such as the common cold, diarrhea, food borne illness and hepatitis A, the overuse of these products can cause far greater problems than they solve. These products kill harmful bacteria on interior surfaces, but they also inhibit sewage treatment and kill microorganisms responsible for biodegradation once out in the eco-system. Some of their ingredients transfer easily between air, water and land allowing them to persist throughout the food chain. One anti-bacterial biocide prevalent in liquid soaps and detergents has contributed to the development of antibiotic resistant bacterial strains and studies have found traces of this biocide in human breast milk. **Surfactants** – added to

### Cleaning Supplies by the Numbers

- Cleaning products were responsible for nearly 10 percent of all toxic exposures reported to U.S. Poison Control Centers in 2000, accounting for 206,636 calls. Of these, nearly two-thirds involved children under six, who can swallow or spill cleaners stored or left open inside the home.

- According to the U.S. Environmental Protection Agency, the air inside the typical home is on average 2-5 times more polluted than the air just outside—and in extreme cases 100 times more contaminated—largely because of household cleaners and pesticides.

- The Janitorial Products Pollution Prevention Project reports that 6 out of every 100 janitors in Washington State have lost time from their jobs as a result of injuries linked to toxic cleaning products, particularly glass and toilet cleaners and degreasers.

- In a 2002 U.S. Geological Survey study of contaminants in U.S. stream water, 69 percent of streams sampled contained persistent detergent metabolites, and 66 percent contained disinfectants.

*Source: World Watch Institute*
*http://www.worldwatch.org/node/1484*

cleaning products so they don't spread too quickly – can disrupt the endocrine systems of birds, fish and mammals, negatively impacting their ability to reproduce.

Some products used for cleaning and maintenance of indoor spaces – those with identifiably strong fumes – produce **volatile organic compounds** (VOCs) creating hazardous indoor air quality, and resulting in headaches, dry eyes, nausea, dizziness and fatigue to office workers. (Even when stored in closed containers, these emissions can seep out and degrade indoor air quality.) Exposure to these toxic chemicals can

lead to life threatening conditions such as asthma, permanent eye damage, major organ damage and cancer. When discharged into the environment, many of these chemicals contribute global warming and ozone depletion.

The repercussions of using these products create a clear moral imperative for change. But also, the loss of productivity from ill employees – 6% of janitorial workers and 40% of office workers – make the switch to environmentally preferable products (EPP) a financial decision as well. In a 30 person office paying an average salary of $25,000 per year, 1% absenteeism costs $7,500 per year and a 5% loss of productivity costs $37,500 – a total of $45,000 per year! *Potential Savings:* A 10% to 20% improvement in these numbers can save $4,500 to $9,000 each year.

You can dramatically reduce the number of toxic chemicals in your work place by reducing the number of products you use, replacing most if not all of your products with non-toxic alternatives, and make simple changes to the procedures you use to keep your indoor space clean.

## Tips and Tricks for Eco-Friendly Cleaning

Stock up on a few safe, simple ingredients that can be used in most cleaning situations. Soap, water, baking soda, vinegar, lemon juice, borax, and a coarse scrubbing sponge can take care of most household cleaning needs.

Instead of using a standard drain cleaner, which likely contains lye, hydrochloric acid, and sulfuric acid, try pouring a quarter cup of baking soda down the clogged drain, followed by a half cup of vinegar. Close the drain tightly until fizzing stops, then flush with boiling water.

For an effective glass cleaner, use a mixture of half white vinegar and half water.

Baking soda and cornstarch are both good carpet deodorizers.

To clean up mildew and mold, use a mixture of lemon juice or white vinegar and salt.

A paste of baking soda, salt, and hot water makes a great oven cleaner.

In the rare instance you need to use a hazardous product, use as little as possible and dispose of it in a way that will cause minimum harm—for example, by bringing it to a hazardous waste recycling or treatment center.

*Source: World Watch Institute www.worldwatch. org/node/1484*

## Getting Started

**Survey the products and tools you currently use.** Take a full inventory of all products currently in stock. Determine what products pose the greatest threat to health and environment, what to discontinue immediately and what should simply get replaced when empty. Think about the possibility of using some products for multiple jobs. This will reduce the need to carry an extensive inventory of cleaning products. According to the Responsible Purchasing Network, a 25,000 square foot office building using 150 lbs of conventional cleaning products can reduce their consumption by 30% while reducing hazardous materials by 60% after implementing recommended changes to the cleaning routine. *Potential Savings:* At $1 per pound, this represents a savings of $100 from the reduction of conventional products.

To succeed, you need to **involve everyone in the process.** Using many of the ideas discussed in the section of this guide called Employee Awareness will help enormously in making this happen. Bring together everyone – including not just the cleaning staff but office workers and management as well – to learn as much as possible about the procedures currently in practice. Learn the perceptions of each stakeholder about eco-friendly cleaning. Learn how the staff currently cleans – be they janitors who clean the whole space or individuals who clean their desks and the coffee pot. Share with them the information you have learned about your current cleaning impacts. Then discuss the vision of creating and maintaining a healthy work environment for them and the larger community. Discuss the importance of "green cleaning" for those who have less awareness as you work to get everyone on board for change. Then create a "green cleaning team" of volunteers to develop an action plan for moving forward.

Make sure you understand the education users will need to ensure the most healthful cleaning procedures when using chemicals to clean. (For example, some of the greener products require longer surface exposure times so janitorial staff will need to scrub a little to make sure they complete the job). Then determine the systemic changes you will need to make so you can successfully switch from conventional to sustainable products.

**Put in cleanable floor mats.** With 85% of all dirt that enters a building is brought in on people's shoes you can substantially reduce the amount of dirt inside by using entry mats. *Potential Savings:* For a cost of $20 - $50 per mat, you can reduce the amount of vacuuming time by at least half.

**Vacuum the space regularly using HEPA filters.** While you may reduce the amount of dirt, you should still continue to vacuum regularly to keep particulate matter at a minimum.

**Clean only when needed.** If you currently clean everyday on predetermined schedule but only need to clean every other day, you can cut the work load in half (alternating days) and the products used as well.

**Use Single Dose Dispensers.** Using containers that deliver a single dose of product (hand soap, etc.) will eliminate waste and reduce exposure to any harmful products you must continue to use. *Note:* this is different than single-serve items that are individually wrapped!

**Find and select non-toxic or less toxic products.** Look for concentrates to reduce water use at point of production and shipping costs – both economic and environmental – and purchase products packaged in containers with high recycled content. In addition, where possible choose tools requiring no chemicals at all such as microfiber clothes or an ultraviolet-C band light emitting tool to disinfect surfaces. *Potential Savings:* One microfiber cloth costs about $10 while saving over 12lbs of chemicals a year – a net savings of $3.

Regardless of whether you make substantive changes to your cleaning products, make sure you store chemicals safely and have employees handling the remaining conventional products *wear safety equipment such as gloves, goggles and face masks.* In phasing out your existing inventory, *arrange for responsible disposal of your conventional cleaning products.* This could mean simply using up your existing inventory in the most diluted formulation possible and recycling its container. It may mean, however, require taking the product to your local hazardous waste disposal center.

Finally, make sure you **set goals** – both incremental and long term – for you must know where you want to go and whether you have gotten there in the end!

Throughout the implementation process, **continue to observe** how things progress. Keep in touch with your employees, for they remain at the heart of your success. With continuous communications you can seize on the "teachable moments". You will know in real time if you need to make changes to your procedures. You will find moments to make small adaptations – avoiding the potential for failure. It also provides the opportunity to acknowledge and reward the successes achieved. While the changes required may involve increased effort, most staff will find the safety benefits worth the trouble.

Look back over your progress and see if you have additional opportunities for making additional beneficial changes. By using benchmarks, your green cleaning team will know when you have achieved your goals of keeping your office clean in an environmentally friendly way.

## Worth the Effort

Switching to environmentally preferable cleaning products requires changing how cleaners are purchased and used. But with proper training and sufficient management oversight at the beginning, you can easily succeed. Successful implementation will have a positive environmental impact and improve worker health, safety and morale.

## Important Terms and Definitions

- **Biodegradable** - Capable of being converted to simpler chemicals by microorganisms. Be cautious of the term "biodegradable." All organic products will biodegrade eventually. The key is that the all the ingredients in a product should be readily biodegradable in a short amount of time.

- **Carcinogen** - Chemical capable of causing cancer.

- **Persistent Bio-accumulative Toxins (PBTs)** - PBT pollutants are chemicals that are toxic, persist in the environment and bio-accumulate in food chains and, thus, pose risks to human health and ecosystems. The biggest concerns about PBTs are that they transfer rather easily among air, water, and land, and span boundaries of programs, geography, and generations. (www.epa.gov/pbt/pubs/aboutpbt.htm)

- **Surfactant** – a wetting agent that helps lower the surface tension of a liquid allowing it to spread more easily.

- **Volatile Organic Compounds (VOC)** - any organic (carbon based) compound which easily becomes a vapor or gas. Along with carbon, they contain elements such as hydrogen, oxygen, fluorine, chlorine, bromine, sulfur or nitrogen. Volatile organic chemicals (VOCs) in cleaning products are of potential concern because of indoor air exposures to office workers and others. They are also of concern because when combined with nitrogen oxides they contribute to the formation of smog in outdoor air. All VOCs, even those VOCs that do not contribute to smog formation, are of potential concern for indoor air quality.

### RESOURCES

- Pollution Prevention Calculator can be found at the Responsible Purchasing Network: www.responsiblepurchasing.org/

- Via Greenbiz.com, I came across a good EPP cleaning guide we could add as a resource to the EFC section: www.cec.org/files/PDF/ECONOMY/ NAGPI-Green%20Cleaners-FS_en.pdf

# CUSTOMER/CLIENT OUTREACH

"Housing is a fundamental building block of *sustainable, healthy communities,* and sustainable communities are the bedrock of environmental justice."

**– Communities for a Better Environment**

Many of the benefits of environmental sustainability happen simply by taking steps to minimize your eco-footprint. Others—like improved eco-impact at project sites, enhanced reputation in the community, and better responsiveness from partners and allies—happen only when people know about your commitment. Sharing your commitment with clients and communities, therefore, and providing them with resources, activities, and knowledge on sustainability will enhance the benefits to your organization – both directly and indirectly - in going green.

Taking a slightly broader view, it also becomes easy to see how the "green habits" and energy efficiency of your clients is a vital part of the sustainability picture – both for your organization and beyond. Housing and environmental problems are inextricably linked, and solutions should be, too. A growing body of research shows how a living environment can have profound physical and mental health outcomes, especially for minority families and low-income communities.

For example, low-income people and minorities are more likely to live in worse environmental conditions and experience greater rates of disease, limited access to health care, and other health disparities. Both asthma rates and blood lead levels are significantly higher among low-income children, for example. And nearly 17 percent of a low-income family's earnings are consumed by energy costs, with nearly 40 percent going to transportation costs.

Thus, reaching out to your clients around a sustainability agenda would not only help to start reducing energy use and CO2 emissions, but it would also begin progress toward solutions to the interwoven challenges of housing, health, and environmental sustainability – a challenge facing most affordable housing communities today.

Furthermore, reaching out to clients will become mutually reinforcing to both organizations and clients. As clients gain access to more knowledge and tools, they will be able to act as advocates for sustainability and support the organization's efforts, just as the organization supports theirs.

And while outreach to all client constituencies is important in going green, kids and youth populations can be particularly helpful. Kids are not only very open and able to absorb the new training and perspectives – but they can also play a key role in spreading the agenda – by taking it into their schools and helping other family members get on board. Specific suggestions for kids are below.

## How to Outreach Effectively

Share your commitment. In order to "brand" a green organization, consider communicating your environmental commitment in the following ways.

- *Clearly communicate formal policies and organizational commitment in all literature, collateral materials, resident handbooks, etc.*

- *Have a section called "Our Green Commitment" on your website – a simple area that provides a policy statement, a brief discussion of actions taken to date, and a summary of the results of those actions (number of trees saved, tons of carbon offset, etc.). This can be coordinated by your organization's Green Team.*

- *Include a similar section called "Our Green Commitment" on all project proposals and grant applications. It can be a 2-3 paragraph summary of the website information and be included on the standard proposal template.*

Remember, people will need to hear about the green commitment many times, and in lots of different ways. Different ways of communicating the agenda might be to: distribute flyers, go door-to-door, do a show-and-tell at the local school, throw an eco-block-party, tie green into their current educational offerings, or offer specific public workshops and trainings. Be sure to note what is most successful at each site, so you can gradually focus your efforts on only the most rewarding initiatives.

Also, recognize that the cause of "sustainability" may not be enough for some clients to care; so it will be helpful to emphasize the cost and health benefits as well. For instance, using greener cleaners keeps toxins out of home, properly recycling batteries keeps toxins out of landfills, and certain measures will save clients on energy and water bills. Draw attention to whatever may be particularly important to the community.

Finally, look for strategic "green" partnerships to help educate residents and clients.

## Specific Suggestions for Outreach to Clients

### GREEN EVENTS

Have community or group-wide outdoor activities like picnics, block parties, or fairs which promote and focus on green topics.

For indoor events, consider organizing "Solution Salons" (Educational Community Events). A Solutions Salon is generally a 2-3 hour event bringing together 50-300 people from a community to talk about innovative solutions for green issues. The event includes a panel discussion and/or keynote presentation, some time to break out into smaller topic groups or to simply turn to your neighbor and share thoughts on local solutions. Also included is a cultural performance like music, poetry, or dance. A Solutions Salon has a clear purpose such as: launching a new green jobs network, bringing people together to support an important initiative, or discussing different emerging opportunities for the community. (See Green For All Guide, www.greenforall.org/resources/)

### Reflections From a Green Auditor on Customer Outreach

"All of the organizations I audited had concerns and wanted more information about how to communicate sustainability issues to their clients in a meaningful way. For most of their clients, their primary concern is having a roof over their heads and food on the table. Trying to "preach" to them about green issues may fall on deaf ears if the information does not focus on what matters to them and doesn't provide an attainable action plan. In addition to clearly communicating formal policies and organizational commitment in all literature, collateral materials, resident handbooks, etc., the organizations should have educational materials and curricula designed for lower-income families and children. These materials should focus on the health benefits and cost savings associated with green living. All of the organizations need assistance in developing these educational materials."

A Solutions Salon (or something similar) is powerful because it:

- *Focuses more on solutions than problems*
- *Inspires people with great new models and ideas*
- *Includes a soulful or cultural component - art is key for keeping it real*
- *Engages the audience directly in a conversation*

Whatever your events are, examine event collateral against eco-impacts. For example, check out Green Banners (www.greenbanners.com) for eco-friendly alternatives to vinyl banners. And see sites like Boundless network (www.boundlessnetwork.com/green) and Eco Branders (www.ecobranders.com) for "green swag" to distribute at events.

Whenever possible, move to electronic collateral and reduce print runs. As your current agreements expire, look for printers that offer some of the following printing options – and see Greener Printer (www.greenerprinter.com) for cost comparisons because going "green" should be fairly cost-competitive.

- FSC-certified paper
- Recycled materials
- Soy- or vegetable-based inks
- Wind powered operations
- Carbon neutral shipping

**PROVIDE RESIDENTS WITH USEFUL "TIP SHEETS"**

For example, you can give them a "10 Tips to Saving Energy" sheet, which might include:

1. *Turn off the lights (and any electric equipment) whenever you leave your apartment or when you do not need them to be on.*

2. *When light bulbs burn out in your apartment, notify building staff, and will provide energy-efficient replacement bulbs for you. Be careful not to break the fluorescent bulbs, as they contain small amounts of mercury, which is a hazardous substance. Also, do not throw away fluorescent light bulbs because the building's staff will take them to the city's hazardous waste facility for proper disposal.*

3. *If you are going to bring lamp(s) into your apartment, avoid using halogen lamps. Not only are halogen lamps major energy wasters, but they also pose a significant fire hazard.*

4. *Make sure the temperature in your apartment is comfortable and the heater is not set too high. During cool months, usually the highest temperature that a thermostat needs to be set for is about 68-69 degrees, and it should be set at a lower temperature or turned off when you are not at home, during warm times of the year, and at night. If the building temperature is too hot or cold (or if your heater will not turn off), notify the building management.*

5. *Do not leave the heat on when you have the window open, or open the window when you have the heat on. Heating and cooling the room at the same time wastes energy.*

6. *Keep your heater clean and dusted.*

7. *Do not place furniture next to the heater, as that can block the heat from entering the rest of the room.*

8. *Clean the dust off of your refrigerator coils twice a year. (Remove the grill at the bottom of the refrigerator and clean the coils in front and back; pull the refrigerator out to sweep and dust behind it.) If you would like to be shown how to do this or if your refrigerator is not working properly, contact building maintenance staff.*

9. *In the laundry room, clean out lint from dryer lint filters before or after each load of laundry. This helps the machines run more efficiently and prevents the lint from becoming a fire hazard.*

10. *For everyday water use, use cold or lukewarm water – instead of hot – whenever possible, as heating the water uses more energy (and costs more).*

You could also give residents "5 Tips on Saving Water," which might include:

1. *When using a sink or the shower, don't run the faucet longer than is necessary for your task. When you turn a faucet off, make sure that it is all the way off.*

2. *If you hear the sound of dripping or trickling water in your apartment or notice that your faucets are leaking or your toilet is running (too long after it has been flushed) and you can't get it to stop, notify the building's maintenance staff right away so that they can fix the leak.*

3. *Try not to take really long showers; keep shower time under 10-15 minutes.*

4. *When using a clothes washer, try to clean fairly full loads, when possible (or select a light-load setting for small loads, to use less water than would be used for a full load).*

5. *When using the dishwasher, always make sure it's full before running, and whenever possible, use the "light wash" cycle or the "energy-saver dry" cycle.*

Other Tip Sheets could address recycling, disposal of hazardous waste, and greener cleaners.

1. *Integrate "green" into current outreach programs*

2. *Provide a brochure on municipal recycling, along with a recycling bin*

3. *Have onsite trainings on green topics relevant to the community*

4. *Give online mini-courses on green topics*

5. *Create good signage for residents and the community – to consistently remind them of key green policies*

6. *Put things in Spanish and/or other languages where appropriate*

7. *Investigate and let your clients know about ENERGY STAR Initiatives when appropriate. HUD and the Department of Energy have developed a web-based resource to simplify the process for obtaining Energy Star product price information and purchasing Energy Star products at lower prices. The Energy Bulk Purchasing Tool (www.quantityquotes.net) offers public housing authorities, very low-income housing sponsors, and other public and community-based organizations a one-stop site to access a broad menu of Energy Star products and equipment at competitive bulk purchase pricing, as agreed to by the manufacturers and suppliers listed on the site. Because the number of participating manufacturers and suppliers of Energy Star products is not restricted, the quotes provided are expected to be competitive.*

8. *Provide "Green Boxes" to residents, which may include CFL's, rolls of weather stripping, window film kits, foam window tape, foam draft sealers for light switches and electrical boxes, and applications for other programs that may supply things like showerheads and thermostats. This could be a joint project with organizations like Salvation Army or local food banks. (see similar program done by Friends of the Earth and Enbridge in Ontario, Canada)*

## Focus on Youth

Kids are imaginative and creative – tapping into this creativity can not only forward the community's green agenda, but it can create life-long climate champions and potentially lead to great new ideas. Recognize that kids want to get involved, and try to give them hands-on opportunities to learn and contribute. The advantage of their active participation is not only that they will be open to new ideas, but that they also will excel at spreading information around the community (among family, friends, and at school).

Additionally, a majority of American children receive some kind of an allowance or other income. Providing education regarding consumer choices and their overall purchasing power is a great way to inform and inspire action. Children can also influence their parents' consumer choices and can advocate for their own future by getting their parents' interested in buying greener products, saving energy, recycling, and so forth.

Some ideas for youth and kids might be: engage them in a discussion of how they think their building, community, or school can benefit from more sustainable measures – and then support them in executing some of their ideas; let kids establish or help with organic community gardens; suggest simple activities like cutting 6-pack rings or having a eco-birthday party; have building-wide contests for kids to solicit ideas about going green, or stage competitions to put their creativity to use around climate change – through art competitions, essay contests, or other fun projects; have green community "internships" with a public oral report at the end (maybe on the simple, straightforward ways that the economy, government, and the environment are connected; or on their observations outside of some animal or plant lifecycle); kids can also be given positions of peer leadership (the person in charge of his family's or floor's recycling or composting; finally, with a little training, kids could also assist community members, property managers, or others in doing energy audits of their homes and buildings – to see the impact of energy use all around them and help be part of the solution.

In general, messages directed at youth need to focus on positives – messages using fear may be overwhelming and scary. Most behavioral change needs to be easy, relatively trendy, and inexpensive to be effective. See Resources below for more kid-friendly resources.

# Case Study in Customer Awareness:
# Community Housing Partners Corporation
# in Christiansburg, VA

Since its inception in 1975, Community Housing Partners has been an environmental steward, striving to create housing that is both affordable and environmentally responsible. From the organization's earliest days when it began providing emergency home repairs and energy conservation services to low-income households, to the launch of its company-wide Down to Earth green initiative in 2003, CHP has made green, sustainable living a way of life for its staff and clients. The Down to Earth program led to the implementation of measurable, green objectives within every department in the company, as well as the continuing education of employees in environmental issues. In order to spread the eco-friendly word to its residents, CHP issues a Green Home Buyer Manual to all new homeowners. The manual includes helpful tips on how to conserve water and energy; information on the care and maintenance of the home's building materials and appliances so that they will last longer; recommendations for eco-friendly cleaning products; and contact information for local recycling centers. An 11-month post-survey is also disseminated to the residents, which informs the company of the likes and dislikes about the residents' homes and helps with ideas for future development. The survey also allows the organization time to address any concerns or issues with the property before Virginia's one-year builder's warranty expires.

## Rules of Thumb for Sustainability Outreach Communications

Below are some staple communications practices that should be followed any time you conduct an outreach campaign:

- *What Are Your Objectives?* To raise awareness, change attitudes, or change behavior?

- *Remember The Big Picture.* Make connections, demonstrate long-term thinking, and blow myths.

- *Be Technically Correct.* Be trustworthy, provide transparency, and give real facts.

- *Create A Sense of Belonging.* Tie messaging to a massive movement for worldwide change, start positive conformity.

- *Use Stories.* Empathy and emotions are powerful, so use stories to hold people's attention.

- *Be Optimistic.* Frame climate protection and sustainable development as achievable, and avoid too much guilt.

- *Praise.* Celebrate accomplishments and highlight success stories.

- *Change Is For All.* Break stereotypes, use inclusive language and images, push mass ownership.

- *Make it personal.* Relate big ideas to everyday life, give your audience a familiar context.

- *Pictures are worth a thousand words.* Photos that show glaciers 60 years ago compared to their retreating state today are good. However, local images are the most powerful and should be used as much as possible.

## You Might Like

The website www.greenplaybook.org, devoted to greening the built environment. It provides strategies, tips, and tools that cities and counties can use to take immediate action on climate change through green building, green neighborhoods, and sustainable infrastructure. And it's designed for both communities that are considering taking first steps as well as those who want to take existing efforts to a new level.

It's comprised of a consortium of local governments, non-profits, government agencies, and utilities that have produced the first phase of the Playbook to help promote the goals set out in the U.S. Conference of Mayors Climate Protection Agreement. That agreement, signed by more than 600 mayors, commits to reducing their communities' greenhouse gas emissions to the targets set in the Kyoto Protocol. In recognition of the rapid evolution of climate change resources, the Playbook is also designed to be kept up-to-date with leading actions and new resources, ensuring its long-term relevancy.

There are four major components to the site: a Strategic Overview – which provides the overarching rationale for action, as well as strategic approaches for establishing new programs and building momentum in green development – and three areas focused on Green Buildings, Neighborhoods, and Infrastructure. Each of these sections then provides extensive background materials and detailed how-to resources under the following headings: Learn, Plan, Act, and Leading Actions (which keeps track of leading-edge actions to show what is possible).

For all phases of green development, the site houses truly excellent resources, tools, case studies, facts and figures, examples of legislation, links to other relevant organizations, and a lengthy glossary. Just a few examples include a "Start Fast" section – which offers immediate actions that can be taken without having to complete a comprehensive long-term plan. It's also accompanied by links to the detailed programs, manuals, studies, and web-based resources of other cities who have taken similar successful actions. Another area provides a variety of assessment tools, showing precisely how to inventory current emissions and assess the many factors influencing adoption of green practices. And finally, there's section on establishing appropriate measurement processes and indicators so that practitioners can show leadership and demonstrate tangible benefits for their efforts. For this and so many more helpful and inspiring tools, check it out!

## Additional Resources

- www.childrenoftheearth.com

- www.kidsforsavingearth.org

- www.epa.gov/epahome/students.htm EPA resources for students and educators

- www.eetap.org The Environmental Education and Training Partnership (EETAP) serves as a national leader in the delivery of environmental education training to education professionals. EETAP supports a wide array of education professionals and is committed to ensuring that ethnically diverse and low-income communities benefit from and actively participate in education that advances student learning and environmental literacy.

- www.relightNY.com Their mission is to inform and inspire people that the seemingly unachievable task of helping to protect the earth's environment for current and future generations can be achieved collectively by the small but tangible action of changing a light bulb.

- www.greenforall.org/resources; An excellent website that serves as a link and clearinghouse for a range of resources on green training, development, service programs, job creation, and other topics related to sustainability.

- www.iclei-usa.org; A guide intended as a resource for local governments interested in engaging community members in their climate protection efforts.

- www.builditgreen.org; Build It Green is a non-profit membership organization whose mission is to promote healthy, energy- and resource-efficient building practices in California. They also have a joint project with the Green Affordable Housing Coalition (GAHC) that brings together public-sector and private-sector professionals who are committed to incorporating green building practices into the design, construction, operation, and maintenance of affordable housing. Information and education on greener multi-family housing.

- www.risingsunenergy.org