

# 2010

## The Green Business Handbook

Carbonfund.org CarbonFree<sup>®</sup> Partner Program



A publication of:



# The Green Business Handbook

## Carbonfund.org CarbonFree® Partner Program

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## Message from the President

Dear CarbonFree® Partner,

Thank you for your partnership with Carbonfund.org. Through your support, you are helping to lead the fight against global warming and create the market transformation to a clean energy future. With the knowledge and experience we have gained in sustainability and green business, we have become the country's leading nonprofit carbon offset and climate solutions organization. Here, in this handbook, you have at your fingertips a collection of tips and solutions to Reduce What You Can, Offset What You Can't™.

These are solutions that your business can implement easily now to reduce its carbon footprint while helping your business save money on energy and other costs. Also in this handbook are solutions for the future that can help your company achieve higher profits from reduced operating costs. Together with offsetting the carbon footprint that remains, your business can become or continue to be CarbonFree®.

Please let your Carbonfund.org partnership manager know by email or by calling (240) 247-0630 if we can be of help on implementation, or if you have current or future challenges on which you would like our input. We would be glad to help in any way that we can. Let us know as well your successes in implementation, so we can mention you in our newsletter or blog.

Thank you very much for choosing Carbonfund.org. We hope this unique handbook is useful to you and your business.

Best Regards,



Eric Carlson  
President

## Introduction

### Purpose of the Green Business Handbook

Congratulations, you have taken action in the fight against global warming by calculating and offsetting your carbon footprint. You have joined the ranks of responsible people and businesses across the globe fighting global warming now with Carbonfund.org. Think of this first calculation as a baseline for your business' footprint and strive for a lower footprint calculation next year. The actions you take over the course of this upcoming year will make the difference for your next calculation.

To help you get started we have created this handbook to provide many reductions resources in one location. We've compiled these topics as a starting point, and because of that, we've included references and encourage you to research additional ways to reduce your carbon footprint. The goal of this handbook is to help build a clear path for you, your colleagues, and your company to reduce your carbon footprint.

### Implement and Start Saving

You can implement simple measures to reduce your carbon footprint without spending a cent. In fact, in most instances, you can even save money by saving energy.

The acts of turning off computers and lowering blinds can save thousands of dollars annually, and small investments such as compact fluorescent light (CFL) bulbs and "smart" power strips can pay for themselves through reduced energy costs. Many businesses see results in the first couple weeks! It's a matter of fitting this into your business' needs, resources, and circumstances. A good environmental plan can motivate your employees, improve your company's reputation, save money, and reduce your carbon footprint.

We also have many business and organizational partners who provide or supply goods and services that can help in the process. Visit our website at [www.carbonfund.org/partners](http://www.carbonfund.org/partners) for a listing of our partners. Remember to Reduce What You Can, Offset What You Can't™, and please do not hesitate to contact your Carbonfund.org partnership manager if you have questions about the carbon reduction strategies in this handbook.

## What You Can Do Now

Below you'll see a list of ways to make changes that you can implement easily, and these changes should show rapid results. Many of these short-term savings come from a change in employee habits and customs. Done successfully, these changes can yield the most return on the smallest investment.

Small steps add up to big savings, and everyone can and should be involved. Remember that ideas and solutions can come from anywhere and anyone in your business no matter which department they are in or skills they have.

### In the Office

#### Turn Off Lights, Computers

Lighting is one of the most expensive components of a utility bill and consequently, one of the largest contributors to carbon dioxide (CO<sub>2</sub>) emissions. If a room isn't in use – because a co-worker is in a meeting, because a meeting is not in session, or because people have left for the night – turn off the lights. Some offices have pizza funds where co-workers agree to donate a quarter each time they're caught with their lights on and the room not in use.

Encourage colleagues to turn off their computers every night and their desktop computer screens whenever possible. "If one million people shut down their office PCs overnight, it would eliminate up to 99,180,000 pounds (45,000 tons) of CO<sub>2</sub> each year."<sup>1</sup> If turning off your computer is not an option, then enable the low-power sleep mode. Remember, screensavers still consume energy.

#### Use Compact Fluorescent Light Bulbs

Compact Fluorescent Light Bulbs (CFLs) can significantly reduce electricity usage. These bulbs are available for overhead lighting, desk lamps, exit signs, and refrigerators. A single CFL bulb will save approximately 100 pounds of CO<sub>2</sub> per year.<sup>2</sup> Energy Star qualified lighting provides bright, warm light but uses about 75% less energy than standard lighting. It also produces 75% less heat and lasts up to 10 times longer.<sup>3</sup> *Note: When CFLs burn out, recycle them properly as described on the packaging or insert because some CFLs may contain small amounts of mercury, which is detrimental to the environment and human health.*

<b>Save up to 75% with Compact Fluorescent Lighting<sup>4</sup></b>			
<b>Kilowatt Hours (kWh) Used Per Year</b>	<b>Potential kWh Savings</b>	<b>Potential CO<sub>2</sub> Reductions</b>	<b>Average Annual Savings by Switching to CFLs</b>
<b>Average Office:</b> 68,900 kWh	51,675 kWh	70,433 lbs	\$5,167.50
<b>10 Person Office:</b> 19,500 kWh	14,625 kWh	19,934 lbs	\$1,462.50

### Light Placement and Natural Lighting

Task lighting with desk lamps reduces overall lighting by focusing on areas of importance rather than the entire office. Turn off lights whenever possible. Natural light requires no electricity and generates zero CO<sub>2</sub> emissions. Where possible, arrange desks and conference rooms near windows and skylights. Another option is to install “light ducts” which channel natural light into the building’s interior.

### Use Passive Heating and Cooling

Make sure the heating and cooling vents are uncovered, allowing for free and efficient movement of air. In winter, do not cover windows with curtains or blinds unless necessary to allow passive thermal heating. During summer months, close the blinds or curtains during the hottest part of the day to reduce the need for air conditioning. For more information on passive heating and cooling, visit: [www.azsolarcenter.com/technology/pas-3.html](http://www.azsolarcenter.com/technology/pas-3.html).

### General Energy Usage

Perform energy-intensive tasks, like copying large amounts of documents, during off-peak hours when possible. If you do not know what the off-peak hours are in your area, ask your local utility provider. They can also tell you about the rate differences and potential savings.

## Controlling Energy Leaks

Many appliances continue to use energy even when they're turned off. Energy "leaks" account for 5% of total U.S. electricity consumed, cost more than \$4 billion annually, and are responsible for 12 million tons of CO<sub>2</sub> emissions annually.<sup>5</sup> Power strips make it easy to control energy leaks and save money. "Smart" power strips "sense the presence or absence of office workers and turn the attached equipment on and off accordingly."<sup>6</sup> They claim to have a pay back of less than six weeks.<sup>7</sup>



## Travel

Air travel is often a significant percentage of a businesses' overall carbon footprint. Flying one round trip between Europe and the US, for example, adds 3 to 4 tons of CO<sub>2</sub> to your carbon footprint. That is roughly the annual carbon footprint equivalent to about half of an average employee's office footprint, and a whopping 20 citizens of Bangladesh.<sup>8</sup>

### Direct Flights

Direct flights shorten overall traveling time and distance while minimizing your carbon impact (much of a flight's carbon footprint comes from takeoff and landing).

### Teleconferencing and Video Conferences

As a company it is important to choose your travel wisely because it has a large impact on your carbon footprint. Minimizing travel can save your company money. Consider utilizing alternative means of communication such as teleconferencing and video conferencing.

Meeting over telephone lines or web cameras eliminates the need for flying, and today's technologies make this easier and more cost effective. "For every 3 meetings held by video conference instead of flying across the US, it would be like taking a car off the road for an entire year,"<sup>9</sup> saving an estimated 11,450 pounds of CO<sub>2</sub>.<sup>10</sup>

When travel is necessary, be sure to offset your trip with carbon offsets. You can calculate and offset through Carbonfund.org's business calculator at [www.carbonfund.org/business/calculator](http://www.carbonfund.org/business/calculator).

Some of our partners let you offset your travel when purchasing your travel, including JetBlue, Virgin America, Amtrak, and Orbitz. Virgin America also lets passengers offset in-flight through its seatback entertainment system.

## Accommodations

When traveling, choose accommodations located near the venue and encourage fellow employees to walk or use public transportation. Use environmentally-friendly hotels that offer towel and sheet-changing options, guestroom recycling baskets, and reduced food-related waste. A linen and towel reuse program can save a 100-room hotel 72,000 gallons of water a year. When possible, offer input to hotel managers or fill out questionnaires indicating that your travel decisions are influenced by the hotel's environmental commitment.

## Rental Cars

Whenever possible, rent a fuel efficient car and nothing larger than a mid-size vehicle unless there is justification for a larger vehicle. Think about balancing out your car's carbon emissions with carbon offsets every time you rent. Also, our partner Avis of Avis Budget Group lets you make corporate rentals carbon neutral.

## Events

Given that events can be travel intensive or require accommodations, the tips in the Travel section above are valuable in planning an event.

Sourcing the goods or materials for an event is also important to consider. Using local providers of goods and services can reduce the carbon footprint of the event by reducing emissions from transportation. As for food and beverages, locally produced, organic selections help reduce transportation emissions and the use of herbicides, pesticides, and manufactured chemical fertilizers. Also consider locally produced, organically grown flowers if they are part of your event. It has been estimated, for example, that between 60 and 80 percent of cut flowers in the U.S. are imported.<sup>11</sup>

For your event to be carbon neutral, you'll need to offset the carbon footprint that remains after your steps to reduce the footprint. To learn more, visit [www.carbonfund.org/events](http://www.carbonfund.org/events).

## Commuting

Depending on the size of your staff and commuting methods, transportation can produce significant levels of CO<sub>2</sub> emissions. One person commuting by car 10 miles for 230 days per year will be responsible for about three-quarters of a ton of CO<sub>2</sub>. Significant amounts of CO<sub>2</sub> can be reduced by carpooling and other alternatives to a solo car commute.

## Biking

Employees who live close enough to bike can be further encouraged by providing them with on-site lockers and parking for their bikes. Live Earth estimates that if 1 million people replaced a 5 mile car trip with a bike ride once a week, it would save approximately 100,000 tons of CO<sub>2</sub> a year.<sup>12</sup>

## Public Transportation

Your company could encourage the use of public transportation by reimbursing employees, offering to provide a pre-paid pass, or allowing employees to contribute pre-tax dollars toward their transit expenses. If your company subsidizes parking, you can realize direct savings if fewer employees need parking spaces.

## Carpooling and Vanpooling

Consider offering carpool or vanpool subsidies to participating employees. The average commuter burns 340 gallons of gas and produces 3.4 tons of CO<sub>2</sub> a year.<sup>13</sup>

## Company Cars

If your company offers company cars, create a policy to encourage or mandate more fuel-efficient models. In addition, regular maintenance such as cleaning air filters, keeping tires properly inflated, and using the right oil may increase cars' fuel mileage. Keeping tires properly inflated can save between 400-700 lbs of CO<sub>2</sub> per year.

## Flexible Work Arrangements

Allow employees to alter their schedules (i.e., instead of starting at 8 a.m., try 10 a.m.) or telecommute to help reduce the time spent in rush hour. This not only helps reduce travel time and carbon emissions, but employees will also be less stressed. Also consider allowing remote work arrangements. A worker at home can connect to their company's e-mail system, share information with co-workers, and even transfer their telephone calls to a distant location.<sup>14</sup> According to the Best Workplaces for Commuters website, "Rush hour now lasts six to seven hours a day; commuters waste 2.3 billion gallons of fuel simply from idling in traffic jams."<sup>15</sup>

## Products

There are many creative ways to reduce the carbon footprint of products. There are opportunities to reduce in different phases of the product's lifecycle, including manufacturing, distribution, packaging, usage and disposal or recycling. From the materials used in the product and any packaging, to efficiencies gained in manufacturing or distribution, and the energy efficiency of the product, your business can develop or update a product to meet the growing expectations of consumers for greener product attributes and features.



A recent study showed that up to 79% of consumers want to buy from companies that are actively reducing their impact on the environment, while 35% say they would even pay more for green goods.<sup>16</sup>

To get started, putting your product(s) through a life-cycle assessment (LCA) provides insight on the phases of the lifecycle and opportunities to reduce the product(s)' carbon footprint. This can be done using Carbonfund.org's CarbonFree<sup>®</sup> Product Certification Carbon Footprint Protocol, which was prepared to the highest standards as a joint effort with the Edinburgh Centre for Carbon Management.

Your product(s) can be certified CarbonFree<sup>®</sup> by Carbonfund.org. As the first carbon neutral product label in the U.S., CarbonFree<sup>®</sup> Certified differentiates products and brands, helps increase sales and profits, and expresses commitment to the environment and fighting global warming. Find out about our certification process by visiting [www.carbonfund.org/products](http://www.carbonfund.org/products).

## Shipping

If you are shipping goods or materials, consider bulk shipments, which reduce pollution and can save your business money. If you can, use simple, re-usable containers that the recipient can save and use for any shipment back to you. Choose packing materials that are made of recycled paper or plastic and are recyclable. If your business ships regularly, such as in fulfilling orders or for shipping materials, consider offsetting your shipping through Carbonfund.org's CarbonFree<sup>®</sup> Shipping option. Carbonfund.org can estimate and offset the carbon footprint of your shipping activities. Learn more by visiting [www.carbonfund.org/shipping](http://www.carbonfund.org/shipping).

## Reduce, Reuse, Recycle



Find ways to reduce consumption, reuse what's already available, and focus on items and products you can recycle once they are no longer needed. According to Live Earth, "if just 1 million people cut down their trash by 10%, we could reduce our yearly CO<sub>2</sub> emissions by as much as 50,000 tons."<sup>17</sup>

Increase the effectiveness of current recycling programs by making it easier to see and use the options that already exist, and expand programs to include new recyclables such as ink cartridges, cell phones, and eyeglasses. If you need to find out what recycling options are available in your area, try this source: <http://earth911.com>.

## Getting to Zero: Carbon Offsets and Renewable Energy Certificates

**“The only way to stop global warming is to get to zero— that is the ultimate goal.”  
-Eric Carlson, President, Carbonfund.org**

This guide has provided the valuable steps necessary to reduce your company's carbon footprint. They are also good for your bottom line.

However, even after all these steps are taken, you will still have a carbon footprint. The electricity, heating, cooling, travel, commuting, printing, and events you engage in all require energy and all leave a footprint. The only way for a company to be carbon neutral is to Reduce What You Can, Offset What You Can't™.

This next section provides an overview of carbon offsets and green power “to get to zero.” Carbon offsets and green power, or renewable energy certificates (RECs), are reductions outside of your place of business to compensate for the emissions your company is responsible for. Think of it like this: you use electricity and instead of building a wind turbine on your property you buy wind energy from a wind farm down the road (just as you currently buy your electricity from a coal plant down the road).

### What are Carbon Offsets and Renewable Energy Certificates?

A carbon offset is a reduction in global warming emissions below a business-as-usual baseline. This reduction, measured in tons of CO<sub>2</sub>, can result from supporting carbon or greenhouse gas reduction projects, including renewable energy, energy efficiency, or forest-based projects. As these projects reduce CO<sub>2</sub> from the atmosphere, they can generate carbon offset credits that can be used to meet a company's voluntary or legal commitment to reduce its carbon footprint.

Carbon offsets are a proven way for businesses to efficiently reduce their impact on climate change. Environmentally, climate change occurs based off of the total concentration of carbon in the atmosphere, regardless of the source of that carbon. Therefore, it does not matter where emissions reductions occur to provide a benefit. Economically, studies consistently show that the offset market is decreasing the costs of more and future emissions reductions, technologies, and projects. Thus, carbon offsets are an essential part of any comprehensive strategy to combat climate change and achieve economic sustainability in a low carbon world.

To ensure that carbon offsets are high quality and their reduction claims are true, carbon offsets must withstand a thorough review by recognized third party verifiers and standards. Carbon offset developers and providers must show that their offsets are real, permanent, additional, not mandated by law, not double counted, and have net positive environmental impacts.

Renewable Energy Certificates are another way your business can reduce its carbon footprint. By choosing to support renewable energy sources such as wind, solar, methane, small or low-impact hydroelectric power, and other clean energy sources, your business is making a commitment to develop renewable energy production. This also allows your business to claim that it is powered by renewable energy, even if the local utility does not offer renewable energy.



For every unit of renewable electricity generated, an equivalent amount of RECs is produced, measured in megawatt hours. The purchase of RECs helps offset the cost difference between clean and dirty sources of energy production such as coal. These purchases help companies reduce their net emissions as well as create the demand for market transformation in the energy sector.

Although carbon offsets and renewable energy certificates can operate in two separate markets, they both achieve the same goal, reducing your climate impact. Carbonfund.org is pleased to offer both high quality carbon offsets and renewable energy certificates.

## Types of Carbon Offsets

While there are many types of carbon offsets, there are three primary types of carbon offset projects. All three types can produce high-quality certified carbon offsets. Forestry projects are the only way to actually remove carbon from the atmosphere, while energy efficiency and renewable energy projects help reduce emissions that would have otherwise occurred.

### Reforestation/Avoided Deforestation

Trees and soil sequester carbon dioxide from the atmosphere naturally. Deforestation causes about 20% of annual greenhouse gas emissions. These projects help conserve land, promote biodiversity, and improve the local environment. Reforestation projects are the only projects that physically remove carbon from the atmosphere. These types of projects typically have a variety of co-benefits to the local ecosystem and economy.

### Energy Efficiency

Reducing energy by using it more efficiently is essential to fighting global warming. These projects, such as truck stop electrification or industrial energy efficiency improvements, directly translate into CO<sub>2</sub> emissions reductions that also improve air quality.

### Renewable Energy

Offsetting with renewable energy, such as wind, solar, and methane supports our country's transition to a clean energy future. Renewable energy production eliminates the need to produce

energy from dirty, fossil fuel sources. Consequently, renewable energy projects help improve air quality and reduce emissions of other harmful substances like mercury.

## Carbon Offsets and Quality Standards

An offset's quality is directly linked to project transparency and the standards the project meets. A quality carbon offset answers the question, *Is it real and who says so?*

Offset standards provide safeguards to ensure that the project is real, permanent, additional, and transparent. These safeguards are split into three separate processes: third party certification, third party verification, and third party auditing.

Third party certification standards ensure that projects meet accepted methodologies, which require that emissions reductions are measurable and additional. Some widely accepted standards include the Clean Development Mechanism (CDM), Voluntary Carbon Standard (VCS), the Climate, Community, and Biodiversity Standards (CCBS), Chicago Climate Exchange (CCX), the Gold Standard, American Carbon Registry (ACR), Green-e Climate, and Climate Action Registry.

Third party verification requires an independent auditor to verify that the project adheres to the third party certification standards. This guarantees that the offsetting is real and meets all the necessary quality controls.

Third party auditing is conducted to provide accountability to offsets. This also prevents offsets from being double counted and double sold. Reputable offset providers undertake annual inventory audits to demonstrate which tons were sold to which specific buyers.

## The Carbonfund.org Advantage

Carbonfund.org projects meet the highest standards in the world. Every project we support meets third party standards and stringent verification protocols, and our entire portfolio is audited annually and made publicly available. We are also a driving force behind enhancing standards.

As a market leader, we are in the unique position to offer high quality standards at competitive rates. The Carbonfund.org Advantage shows our commitment to the highest-quality carbon offsets and RECs, which is why over 1,200 companies and 450,000 individual supporters have chosen us. These advantages include:

- **Third party standards** – We use only the highest standards in the industry.
- **Third party verification** – All our projects are independently verified.
- **Third party auditing** – An independent auditor matches our donations to our project requirements to ensure we are doing what we say we are.
- **Nonprofit** – Carbonfund.org is a mission-driven organization. Over 92% of our funding supports our mission of education, offsets, and outreach.
- **Transparency** – We show you our projects, standards, processes, and audits.

- **Project choice** – It's your money, your choice. We let you choose which types of projects you want to support to meet your goals.
- **Partner support** – We provide unparalleled support to our partners to help you communicate your environmental commitment through our newsletter, blogs, press releases, and custom-made programs for your customers, employees, and stakeholders.

Carbon offsets and green power are the only way your company can become carbon neutral today. By supporting our innovative projects, you are also helping drive investment in new, clean energy projects and technologies which help make them more affordable. Our goal is to help make clean energy cost less than dirty energy and you can be a leading part of this important transformation.

To learn more about our projects, please visit [www.carbonfund.org/projects](http://www.carbonfund.org/projects).

## What You Can Do in the Future

### Office Equipment

It is possible that switching your company's current equipment for more energy efficient equipment is not possible or practical as a single step right now; however, changing purchase habits to buy more efficient models and brands, especially for larger or more intensely used equipment, can be a great investment in cost and CO<sub>2</sub> reductions.

#### Energy Star Office Equipment

Energy Star is a U.S. government-backed program designed to help businesses and individuals increase energy efficiency to protect the environment.<sup>18</sup> Home and office equipment that meet certain energy efficiency levels can receive an Energy Star certification and use as much as 60% less electricity than standard equipment. This includes air conditioners, fans, programmable thermostats, computers, printers, copiers, fax machines, water coolers, refrigerators, dishwashers, and microwaves.<sup>19</sup>



The Energy Star Buildings program also provides free information about taking a deliberate approach to improving energy performance in buildings.

Energy Star Appliances and Equipment <sup>20</sup>			
Kilowatt Hours (kWh) Used Per Year	Potential kWh Savings	Potential CO <sub>2</sub> Reductions	Average Annual Savings by Switching to Energy Star
<b>Average Office:</b> 23,850 kWh	14,310 kWh	19,505 lbs	\$1,431
<b>10 Person Office:</b> 6,750 kWh	4,050 kWh	5,520 lbs	\$405

## Laptops vs. Desktops

Laptop computers are more energy efficient than desktop computers and actually use up to 90% less energy than standard computers. Desktops have become easily upgradeable, however, and could result in less waste over the long-term. Virtually all laptop models are now Energy Star qualified, and many laptops are cost competitive with desktops.<sup>21</sup>

## Energy Efficient Printers

Another piece of equipment that uses about 90% less energy is the ink-jet printer, as compared with more energy intensive laser printers. Many ink-jet printers come as all-in-one devices combining printers, copiers, scanners, and fax machines. Many of these are Energy Star qualified.<sup>22</sup>

## For the Building

Building maintenance and changes can be a serious investment that pays big CO<sub>2</sub> and energy saving dividends in the long run.

### Conduct Preventive Maintenance

When office equipment is overworked because of problems such as clogged air filters, they use additional energy and emit unnecessary heat and CO<sub>2</sub>. Regular check-ups and preventive maintenance will avoid costly repairs in the future.

### Carpets

When carpets become worn, recycle them. Some carpets allow the more-frequently walked-on midsection to be removed, reducing overall waste and minimizing replacement costs. Consider natural dyes as opposed to petrochemical based dyes. According to the U.S. Environmental Protection Agency, 4.7 billion pounds of carpet were thrown away in 2002. 96% of all discarded carpets went to landfills.<sup>23</sup>

### Use Programmable Thermostats

Programmable thermostats can be programmed to adjust office temperatures during off-hours such as evenings, weekends, vacations, or holidays. If your company does not have programmable thermostats, see if they can be installed. Every degree of lowered temperature can save approximately 5% saving in heating costs.<sup>24</sup>

<b>Turning Down Your Thermostat Just One Degree Can Save 5%<sup>25</sup></b>			
<b>Kilowatt Hours (kWh) Used Per Year</b>	<b>Potential kWh Savings</b>	<b>Potential CO<sub>2</sub> Reductions</b>	<b>Average Annual Savings by Turning Down the Thermostat One Degree</b>
<b>Average Office:</b> 37,100 kWh	1,855 kWh	2,528 lbs	\$185.50
<b>10 Person Office:</b> 10,500 kWh	525 kWh	716 lbs	\$52.50

### Light Dimmers and Photo Sensors

Dimmers or photo sensors, which automatically dim electric lighting when there is natural light, are good options for office spaces with many windows or skylights to help reduce electricity use from lighting.

### Adjust Outdoor Lighting

If your office has outdoor lighting or a parking garage, think about changing the lighting schedules seasonally as the amount of available natural light increases and decreases. Using solar-powered lighting further reduces the amount of electricity used and the associated CO<sub>2</sub> emissions.

### Occupancy Sensors and Timers

Occupancy sensors ensure lights are off when the facility is not being used. According to the Electric Power Research Institute, companies can realize a 45-65% savings in electricity for storage rooms and conference rooms along with 50-75% savings in warehouses when occupancy sensors are installed.<sup>26</sup>

Like programmable thermostats, timers ensure that all lights are turned off after work hours, on weekends, during holidays, and vacations. A manual override can be used for times when employees are working overtime. On average, offices waste about \$12,000 annually by leaving equipment on over weekends and holidays.<sup>27</sup>

## Optimal Insulation

Insulation, whether for walls, floors, or roofs, comes in both traditional and recycled materials. Start by asking your building manager about the type and amount of insulation used and where it is located. Installing high-quality insulation in the attic and walls of a building, in addition to caulking, can cut energy consumption by up to 20%.

## Restrooms

Consider installing dual-flush or low-flow toilets and urinals, faucets, and showerheads. New-design, low-volume toilet fittings can reduce water used per flush by about 66%.<sup>28</sup>

## Roofs

Properly insulated roofs can also reduce energy loss. Several California locations have adopted “cool roofs” – lighter colored roofs that reflect more solar radiation. Cool roofs can reduce the roof surface temperature by up to 100 degrees Fahrenheit.<sup>29</sup> Other businesses have planted trees on their roofs not only to insulate the building and shade it from solar radiation, but also to control storm water. If the roof cannot support the weight of trees, consider an organic garden. Native plant species which are drought resistant and require less maintenance are best for this purpose.



Also consider installing solar panels to help power your building(s). More information on solar options can be found at [www.seia.org/cs/about\\_solar\\_energy/how\\_do\\_i\\_go\\_solar](http://www.seia.org/cs/about_solar_energy/how_do_i_go_solar).

## Windows

There are many types of glass, space fillers, and coatings to choose from. The website [www.efficientwindows.org](http://www.efficientwindows.org) can help to properly choose energy efficient windows and skylights. Furthermore, window upgrades can minimize condensation or moisture, reducing the amount of mold and maximizing the lifespan of insulation and paint. New windows can save 10-25% on annual heating and cooling bills and reduce up to 10% of annual CO<sub>2</sub>.<sup>30</sup>

## HVAC (Heating, Ventilation, and Air Conditioning)

If the previous four steps are addressed, a less expensive and more efficient HVAC system can be used. Energy Star qualified light commercial HVAC equipment can save \$3-4 per square foot over the life of the equipment.<sup>31</sup> If your office is located in a modern, high-rise building, these functions are undoubtedly maintained by building managers. Many facilities could reduce energy consumption by 18% if regular preventive maintenance schedules are in place.<sup>32</sup>

<b>HVAC Maintenance Can Reduce Your Energy Use By 10%<sup>33</sup></b>			
<b>Kilowatt Hours (kWh) Used Per Year</b>	<b>Potential kWh Savings</b>	<b>Potential CO<sub>2</sub> Reductions</b>	<b>Average Annual Savings by Performing Preventive Maintenance</b>
<b>Average Office:</b> 15,900 kWh	1,590 kWh	2,167 lbs	\$159
<b>10 Person Office:</b> 4,500 kWh	450 kWh	613 lbs	\$45

Though most of us cannot control the heating or cooling of our office buildings, most offices allow for localized control of heating and cooling with thermostats. Set the thermostat as conservatively as possible without affecting people's ability to work comfortably and productively.

### Water Conservation

Water is a common resource, but keeping water clean and potable uses energy. Even seemingly small things like a leaky faucet can waste energy. A faucet that drips at one drop per second wastes 2,700 gallons a year.<sup>34</sup> Use cold water to reduce the electricity needed to heat water for watering the landscape or washing dishes by hand.

You can further reduce the water used for landscaping by planting noninvasive plants suitable for the climate; otherwise known as xeriscaping. Instead of using potable water, the water for plants or landscaping can be "gray water," captured during dishwashing or by a rooftop rainwater recovery system.

## Paper Choice Matters

The type of paper you choose to purchase matters. Carbonfund.org offers a paper calculator among its business emissions calculators at [www.carbonfund.org/business/calculator](http://www.carbonfund.org/business/calculator). Use this calculator to find out the impact your office paper choice has on the environment including the amount of CO<sub>2</sub> needed to produce it. Compare this to paper you might consider switching to use and protect the environment. Below you'll see some guidelines to help improve your business' paper use.

### Use Recycled Paper

When purchasing paper, make an effort to buy 100% recycled paper. These products exist not only for office paper (e.g., copying and printing) but also for stationary, envelopes, paper towels, tissues, paper cups, and toilet paper. One ton of 100% recycled paper saves the equivalent of 4,100 kWh of energy, 7,000 gallons of water, 60 pounds of air emissions, and three cubic yards of landfill space when compared to virgin paper.<sup>35</sup>

### Reuse Scrap Paper

Encourage colleagues to reuse paper by setting up a scrap paper box for employees looking to make quick notes and to-do lists. Similar boxes or trays can be provided to collect and reuse envelopes, cardboard boxes, file folders, and other similar paper products. The California Integrated Waste Management Board suggests shredding newspapers to reuse for packaging.<sup>36</sup>

### Electronic Communications

Using e-mail reduces the use of envelopes, letterheads, and stamps. Paying bills and sending faxes can also be done electronically. The Environmental Paper Network states that Bell Atlantic saved 29 tons of paper and more than \$60,000 by expanding the use of electronic purchasing orders and invoices.<sup>37</sup> Skip the cover sheet on a fax and encourage employees with newspaper subscriptions to get electronic subscriptions. The Sunday *New York Times* alone uses roughly 75,000 trees per edition.<sup>38</sup>

### Internal Reports

Encouraging employees to email documents, as opposed to printing them out for meetings, as well as previewing and/or editing documents over the computer will make a dramatic difference in paper waste. Consider adopting a policy allowing internal documents to be submitted with minor legible handwritten corrections.<sup>39</sup>

## Electronic Filing and Storage

Electronic filing systems can help conserve paper and improve efficiency. If possible, use CDs, shared drives, or USB Drives to store information and save files.

## Paper Weight

Paper weight refers to the heaviness of paper and is the approximate weight of 500 sheets in the dimensions of 17 inches x 22 inches. Lighter paper is thinner and thus uses fewer trees and often costs less.

## Mass Mailings/Junk Mail

Contact mail senders to take your company's name off their mailing list or mark unwanted first class mail Refused, Return to Sender.<sup>40</sup> There are also organizations, such as 41pounds.org, a CarbonFree® Partner that helps remove recipients from mass mailing lists that send them unwanted junk mail. Another way to reduce the amount of paper in your mailings is to consider designing mailers to avoid the use of envelopes through folding and stapling.<sup>41</sup>

## Paper Towels and Cups

If you use paper towels in your office kitchen or bathrooms, look for towel brands with shorter sheets (the size is usually listed on the packaging). Shorter sheets can extend the life of each roll and cut back on paper towel consumption. Consider installing a hand dryer to reduce paper towel usage. Try to limit the number of paper products used by using ceramic dishware, dishtowels, and hand cloths.

## Purchasing Products and Services

Offices purchase a wide range of goods and services. The following section suggests options that enable you to increase your responsibility in purchasing goods and services that produce less CO<sub>2</sub> emissions.

### Create a Green Purchasing Policy

Establish sustainability as a key criterion when making purchases. For example, ask vendors to identify products that promote waste reduction and recycling, such as “recycled content, regional availability, minimal maintenance needs, and low chemical emissions.”<sup>42</sup>

### Local Suppliers

Select suppliers located close to your business to reduce shipping costs and the CO<sub>2</sub> emissions associated with transportation. A 5-pound package shipped by air across the country creates 14 pounds of CO<sub>2</sub> (4 pounds if shipped by truck).

### Pre-Purchase Review

When undergoing inventory or ordering products, reevaluate all items purchased. Try to eliminate disposable and single-use products (i.e., paper towels and straws). The California Environmental Protection Agency’s building undertook other improvements like eliminating garbage can liners and using reusable cotton bags in centrally located recycling bins, which together save \$80,000 per year.<sup>43</sup>

### Packaging and Shipping

Try to purchase and ship products with little or no packaging. Consider bulk shipments. Request deliveries to be shipped in returnable containers and if not, reuse shipping materials like cardboard boxes, foam peanuts, and bubble wrap.

### Recycled and Refurbished Products

Recycled products are not inferior to traditional, virgin sources and are available for such diverse purchases as: ink cartridges, printers, award plaques, trash bags, floor tiles, roofing materials and bike racks. Consider the fact that “you can make 20 new cans from recycled material, with the same energy it takes to make 1 from scratch.”<sup>44</sup>

## Food Products

Choose socially and environmentally responsible options and promote those options to suppliers when purchasing food. Also, locally grown products will reduce the amount of CO<sub>2</sub> from transportation.

### **CarbonFree® Certified**

The first carbon neutral product label in the U.S., Carbonfund.org's CarbonFree® Certified differentiates brands and products that are carbon neutral and supporting Carbonfund.org's offset projects.



### **Fair Trade**

Fair trade standards ensure laborers (e.g. coffee farmers) are paid a fair wage for their hard work.<sup>45</sup>



### **Organic**

Buying organic products will reduce fossil-fuel based additives such as pesticides, herbicides, fungicides, rodenticides, and manufactured chemical fertilizers. Three times less energy is required to produce organic milk than regular milk.<sup>46</sup>



## Wood Products

For items such as desks, chairs, paper, etc. that are made from wood, encourage purchasing certified sustainable wood from the Forest Stewardship Council (FSC). FSC is a multi-stakeholder group which upholds standards in the forestry industry to ensure wood products are harvested from areas which undergo environmental impact statements and respect local communities.<sup>47</sup>



## Paint

Use water-based, non-petroleum, non-toxic paint to reduce indoor air pollution and lower toxicity levels, i.e., choose low volatile organic compounds (VOCs).

## Batteries

If products such as computer speakers, wireless keyboards, or telephones must use batteries, consider using rechargeable batteries over the conventional one-use, disposable type. You can also consider Venom Power's Eco Alkalines™, which have been certified carbon neutral by Carbonfund.org. Furthermore, consider solar powered items for office products such as calculators and flashlights.

## Implementing a Program

Many of the steps suggested in this handbook may require the approval and cooperation of people other than you, such as your building's management and/or your boss.

- Consider designating someone specifically to act as a sustainability point person
- Have him/her create an emissions reduction or sustainability plan
- Begin with an assessment of your current energy use, set goals, and promote the commitment

Email or call your Carbonfund.org partnership manager if we can be of help in the process.

## Getting Employees Engaged

Employees, including senior management, human resources, marketing, sales, purchasing, maintenance, cafeteria employees, and/or cleaning crews should be incorporated into the plan. Also include key stakeholders such as board members or others. This process includes giving employees an opportunity to express ideas or solutions, along with informing them of policy changes or new developments.

### Getting the Message Out

- Keep people informed. Announce formal goals.
- Include an announcement in your employee communications and/or newsletter.
- Invite employees to calculate, offset their own carbon footprints at Carbonfund.org.
- Hold meetings before, during, and after to invite discussion of ideas.
- Bring in guest speakers on relevant topics and/or attend conferences.
- Post display(s) or signs in your office.
- Have a formal kick-off event.

### Incentives

- Offer parking cash-outs if employees are provided with a parking space. This encourages employees to carpool or utilize public transportation.
- Provide an "emergency ride" service to ensure that those who take public transportation to work will have a ride home or to a local address in an emergency.
- Connect energy savings to definitions of success.
- Hold contests. Provide winners with gift certificates or extra personal days.
- Publicize successes. Let people know when goals are met.
- Recognize staff members who are taking strides to reduce their own and/or your business' carbon footprint.

## Conclusion

Reducing your carbon footprint and offsetting what you can't help to establish your business at the forefront of the carbon conscious movement and fighting global warming. Large or small, your business' environmental responsibility just makes sense and proves to employees and customers or clients alike that you are a leader in the community and committed to environmental stewardship.

Going green is not one-size-fits-all. Carbonfund.org knows that what is right for a large corporation with employees traveling around the globe does not necessarily suit a small start-up. That's why this guide emphasizes making the choices your business needs in order to Reduce What You Can, Offset What You Can't™.

Thank you for your dedication to fighting global warming. We look forward to hearing about the ways you've reduced your climate impact. Please do not hesitate to contact your Carbonfund.org partnership manager by email or calling (240) 247-0630 if you have questions, or if we can be of assistance in your efforts. We will be happy to help in any way we can.

– Your Carbonfund.org Team

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