**Carbon Footprint**

**Defined**

Carbon footprint is the measure of direct and indirect impact our activities have on the environment. This term is a way of evaluating the environmental burden of a product or service. These evaluations depend on the businesses unique decision making processes when selecting products and services. A carbon footprint is made up of two parts, primary and secondary footprint. Primary footprint measures direct emissions of CO2 from the burning of fossil fuels; while secondary footprint measures the indirect CO2 emissions from the whole lifecycle of products we use (CleanMetrics).

**Measured**

The actual measurement is the total amount of carbon dioxide and other greenhouse gases emitted over the life cycle of that product or service expressed as kilograms of carbon dioxide equivalents (CleanMetrics).

**U.S. Greenhouse Gas Emmissions**

Graph 1

Source: EPA

Graph 1 demonstrates various sources that contribute to the amount of carbon emissions created by the U.S.
**Carbon Footprint Today**

Some examples of primary footprint would be private and public transportation, air travel, and your own homes oil, gas, and electricity. Examples of secondary footprint consist of public services, private services, recreation, clothes, buildings, furnishings, food, beverage, and manufacturing all around (Carbon Footprint Ltd.). “Greenhouse gases” in the atmosphere are a good thing; however, the true problem is when they are released into the atmosphere faster than natural processes can reabsorb them. CO2 is being released about three times faster than it can be reabsorbed. Every second, human activity emits another 770 tons (Yarrow 6). Nearly every aspect of our lives contributes to our carbon footprint. People all over the world are releasing CO2 at a highly rapid rate. Advancements in technology have presented our world with numerous options on how you can make a difference and reduce your own carbon footprint.

**Options to Reduce Carbon Footprints**

**Energy Saving Practices**

Quad/Graphics, the states largest printer, voluntarily committed to reduce it’s electricity by three percent per year per unit of output on an ongoing basis. Since then, the company has implemented impressive and comprehensive energy-efficiency initiatives to reduce electricity by more than 35 percent per unit of output (Imes). Envision the change that could arise if more businesses would alter their electricity usage. It’s estimated that even a two-percent reduction in Wisconsin industrial electricity use would reduce greenhouse gas emissions by over 400,000 metric tons each year (Imes). It
is imperative for organizations to take the lead through environmentally smart actions and procedures.

As with other greening initiatives, both the business and environment will benefit. Here is a list of steps to follow to “green” your environment for your business to execute a carbon reduction plan (Carlson 142).

1. Identify a green logistics strategy.
2. Reduce carbon use with incremental small practices.
3. Launch a telecommuting program.
4. Consider carbon offsets for what cannot be improved further.

Not only is it crucial for organizations to implement environmental change but also for individuals. For example, companies as well as individuals can invest in ENERGY STAR, a program that has grown to encompass more than 35 product categories for superior energy management within organizations. These products consist of office equipment, electronics, heating/cooling, appliances, and lighting. A workplace fully equipped with ENERGY STAR qualifying products will operate on about 30 percent less energy than a workplace equipped with standard products. The typical organization saves about $400 each year (EPA 3).

Before a company is able to start reducing their carbon footprint they first must know their current carbon footprint or how much energy your company is consuming to see if they have made an improvement. Quantitative data can be found in your company’s utility bills and expense records. These records will provide accurate information for current spending on electricity, water, office supplies and other operating costs.

To reduce carbon emissions, incorporate energy efficient lights, HVAC system,
reduce, reuse, recycle, power management from use of Energy Star products, and using less energy for your commute (“Reduce Your Carbon Footprint”). The commercial printing company should install lights sensors to turn lights off automatically in heavily used areas and replace low efficiency lighting with higher efficiency fluorescent bulbs. Schedule heating and cooling to turn on during business hours and turn off when business is not being conducted. According to Firm Green Energy: use natural heating and ventilation if possible, set the temperature a degree or two warmer in the summer and a degree or two cooler in the winter, clean air filters regularly and have your system tuned annually by a licensed contractor, and when it's time to replace your old equipment, choose a high efficiency system.

**Printing Alternatives**

Small commercial printing companies have been affected by increased prices in oil, natural gas, and paper in the past few years. These companies have developed some techniques to reduce their carbon footprint as well as trim down their expenses. Technology is the main trend in the business industry that helps companies cut back on costs and carbon footprint. Most commercial printing companies have transitioned to digital technology. Advances in both digital and conventional offset printing technology are lowering the cost per page for new printers. Info Trends projects that the decline in cost per page will average 10 percent per year through 2010 (www.firstresearch.com). Switching to digital technology gives the company less room for graphical, grammatical, and all other printing errors. Because of the increasing conversion of images to digital
format before printing, some commercial printers now provide digital inventory services. Some printers, in an effort to expand services, are capitalizing on their new expertise in the transfer, manipulation, and storage of digital images, especially in the front-end Computer-Aided Design (CAD) process, Web page design, CD production, and in general document and information management and distribution (www.firstresearch.com). Digital technology has really grown within commercial printing companies to save money and reduce their carbon emissions.

According to the Carbon Trust, "paper is the dominant contribution to GHG emissions due to inefficiencies in current commercial and office print applications" (Canonico, Sellman, and Priest). We are relying dependently on analog print technologies. Instead we need to use technology to reduce emissions by employing digital print technologies such as e-paper and more efficient printers that use less energy and ink.

In order to fully understand how to make changes it would be best to find out from a small printing company how they try to decrease their carbon emissions. Vicki, from the Press Printing Co. in Beloit, was able to discuss easy ways to make a difference. She said the company focuses on recycling as much as possible. She states “As technology is changing, digital is the big thing now. With going digital, you don't have to use solvent, ink, less paper waste, no negatives, and no plates. It is the future of printing.” Vicki made a point to emphasize that it is important to look at the future and go with the changes.

The most significant reason for companies delaying or refusing participation in green initiatives is the financial effects of such a change. However, these financial
effects are becoming more and more positive. What used to be seen as an irritant can now be a benefit to companies willing to invest in green practices.

Catdi, Inc. in Houston, TX has recently opened a full division of green commercial printing services offering eco-friendly equivalents like recycled paper and soy ink. The soy ink and the 100% recycled paper are higher priced, but according to President Carlos Alonso de Santos, it is something that public relations consultants and Earth conscious clients are willing to pay (“Houston Area Commercial Printer to Go Green”). Companies use green practices as a promotional tool, so they are willing to pay higher prices from anyone that enables those practices. If a company is one of the enablers, it wins twice. The customer is willing to pay a higher price and it too can use its green practices as a promotional tool.

Preferred Printing Company in Connecticut has also made strides in green commercial printing. Preferred has enjoyed the following savings since committing to sustainability (Preferred Printing):

- 70 percent reduction in waste since installation of a new computerized Komori presses
- 30 percent savings in electricity since investing in high efficiency lighting
- 40 percent reduction in ink used from printing by using computerized ink distribution

With advances in technology, the eco-friendly alternatives are providing substantial returns on investment. Combined with ability for promotion to an increasingly large environmentally conscious market, it makes great financial sense to invest now in green practices.
If a company were to implement energy saving practices as well as digital print technologies, incorporating: Pull printing, Universal Print Drivers, Web Jet Admin. The Web Jet Admin allows to printer to go into a pre-set sleep and wake mode to conserve energy during evenings and weekends. The Universal Print Driver increases duplex rates resulting in a paper savings of 16%. Finally, the Pull printing feature avoids print jobs being lost thus, reducing print costs by 10%.

The R&D team calculated the savings based on a typical small company that has about 80 employees, 11 printers, and an estimated pages printed per year of 15,000/employee. Based on the results the research team has concluded that you could be saving $1,761/year by implementing the aforementioned techniques. Also if you were to change your ink to soy based it would increase your overall savings on ink, due to the rising prices of petroleum. Therefore, your company can save money as well as reduce your carbon emissions by 12% (4,901lbs) per year.
Conclusions and Recommendations

Based on the research, it has been concluded that reducing carbon emissions is of vital importance. There are many options to decrease carbon footprints such as energy saving practices and using printing alternatives. By following these recommendations, it will be easier to keep an eye on the companies total quality management.

1. Implement Energy Saving Techniques

By making a few energy adjustments it can be easy to reduce carbon emissions. Schedule your heating and cooling systems to times when it is necessary for them to be on. By using ENERGY STAR products there is a larger chance in decreasing the amount of electricity the company uses. By doing any of these it is a start in the right direction.

2. Use Printing Alternatives

The research shows that there are many alternatives in the printing industry. Technology has advances and digital prints are become a better alternative to save energy. Switching to soy ink and recycling are also strong suggestions that can make a big difference.

3. Focus on Total Quality Management
The government wants carbon emissions down and people want to be green. There is a huge chance that a company can lose customers if they do not start using more energy efficient techniques. It is time to change the company with this evolving world. There are many options to cut carbon emissions and it is important a company finds the best way that suits their organization.
Works Cited


Dieter, Victoria. E-mail interview. 29 Oct. 2009.


