

## Office Operations Footprint

### INTRODUCTION

**W**orld Centric is a non-profit organization dedicated to reducing economic injustice and environmental degradation through education, community networks and sustainable enterprises.

As part of our mission to be environmentally sustainable, we aim to become a resource-neutral organization through conservation efforts and resource offsets.

This document summarizes research quantifying the impact that World Centric's office operations have on the environment. The goal is to offset our usage so that we can become a resource-neutral organization.

More specifically, the aim is to increase transparency by helping World Centric, its board of directors, customers, business partners, and all others associated with the organization, to understand and answer the following questions:

1. What quantifiable impact does World Centric have on the environment through its water, electricity, transportation and landfill usage?
2. What methodologies are currently in place to reduce its water, electricity, transportation, and landfill usage?
3. How can World Centric offset its current environmental impact?
4. What measures can World Centric implement to further reduce this impact and offset its future impact?



World Centric is a social enterprise that offers biocompostables to facilitate our mission objectives - to provide sustainable and equitable alternatives for daily consumption needs which reduce environmental degradation and social inequality.

This information is collected: (1) for detailing the steps that the organization has taken to reduce its impact, (2) to account for World Centric's office operations impact, and (3) to aid World Centric in offsetting its impact.

Thus, the emphasis is on finding quantifiable impacts in the office; it is not an exhaustive list of all impacts. For example, this study does not include the life cycle analysis of biocompostable products associated with World Centric, or the transportation emissions of those products.

## SUMMARY OF FINDINGS

### Operations Footprint

CATEGORY	WORLD CENTRIC	NATIONAL
Energy	876 kWh /month	888 kWh /month
Water	3.9 CCF /month	9.55 CCF /month
Transportation (Emissions)	6,934 lb. of CO <sub>2</sub>	11,450 lb. of CO <sub>2</sub>
Waste (Diversion Rate)	77%	32.1%



#### Certified Green Business

World Centric is a Certified Green Business through the Santa Clara Green Business Program.

#### Energy

Current energy consumption is at an average of 876 kWh per month for 5000 square feet of space and 13 employees. This is below the national average household usage of 888 kWh per month.

World Centric has implemented various conservation measures to improve the efficiency of our energy usage. The top three energy savers, include: (1) electing to use mostly (78%) laptops rather than desktops, 2) using natural sunlight rather than artificial lighting, and 3) operating fans and space heaters only when necessary (not set on a timer).

World Centric has retrofitted our incandescent lights with compact fluorescents, which use 75% less energy. We have also replaced our T12 lamps with T8 because they use 20-25% less energy<sup>7</sup>.

World Centric has elected to join Palo Alto Green, a program which supports 100% renewable energy generated from wind and solar sources. Energy use in the office is, thus, a carbon-neutral activity.



#### Transportation (Emissions)

World Centric encourages public transportation through offering public transportation rebate benefits. The office-wide transportation survey shows that 70% of employees engage in at least one form of non-emitting/low emitting mode of transportation to and from work, at least once a week. Non-emitting/low-emitting activities include walking, biking, and taking the bus, train, or subway.

As an organization, employees emit an average of 6933.84 pounds of CO<sub>2</sub> per year from their vehicles and through public transportation. This is 39.44% less than the annual average emission per passenger car in the United States of 11,450 pounds<sup>3</sup> of CO<sub>2</sub> per year.



#### Water

Current water consumption is at an average of 3.9 CCF per month. One CCF is equal to 748 gallons of water, enough to fill 21 bathtubs! This is much less than the monthly average usage per household in the United States, which is about 9.55 CCF<sup>2</sup> of water per month. World Centric works to ensure water conservation through (1) the installation of low flow toilets and aerators, (2) regularly checking for and repairing leaks in the facility and (3) manually controlling sprinklers rather than setting them on automatic timers.



#### Waste

Each month, World Centric diverts 83,8374 pounds of waste into recycling and composting programs. Of this waste, 33.65 pounds is paper and cardboard waste, 12.38 pounds is bottles and cans, and 37.8035 pounds of compostables. About 25.37 pounds of waste goes into the landfill. This is a diversion rate of approximately 76.77% - compared to the U.S.'s 32.1% diversion rate<sup>4</sup>.

## SUMMARY OF OFFSETS IN PROGRESS

### Energy

Operations energy use is offset through the Palo Alto Green Program. The Program purchases units of renewable (wind and solar) energy equivalent to the electric usage reported to CPAU every month. This energy is delivered to the grid, which, in turn, redistributes the energy to California residents. Less electricity is produced daily from non-renewable power plants due to these offsets.

Based on World Centric's projected electric usage of 10,512 kWh per year, we will prevent 18,078 pounds of CO<sub>2</sub> from being released in to the atmosphere. This is equivalent to the carbon sequestered by 210 trees<sup>5</sup> or the emissions-equivalent of 928 gallons of gasoline. That's enough to drive 22,179 miles<sup>6</sup>; from the North to the South Pole!



Further reducing energy usage may involve: (1) switching all appliances and equipment to ENERGY STAR items and (2) replacing the remaining desktops with laptops (desktops consume up to 5 times more energy than laptops<sup>8</sup>).

### Water

Based on the projected water usage of 3.9 CCFs per month, World Centric will utilize approximately 46.8 CCFs in one year.

In order to offset water usage, World Centric is considering creating, sponsoring, participating in, or donating to projects that involve: (1) excavating water wells (2) purchasing water pumps (3) re-vegetating and stabilizing water banks, (4) improving road surfacing and drainage, (5) reducing nutrient run-off at gardens or on farms, (6) improving sewage management, or (7) installing pollution control equipment at other off-site sources.

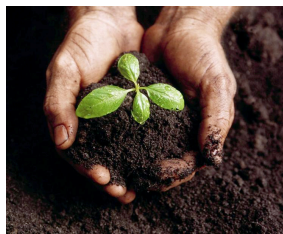
### Transportation

Carbon offsetting is the concept that one may compensate for one's carbon dioxide emissions by sequestering it elsewhere. This coincides with World Centric's aims to support sustainable development programs in the developing world. We are thus considering: sponsoring, participating in, or directly donating to carbon sequestering programs such as tree planting projects, efficient (e.g. smokeless) cooking stoves, small scale solar village lighting projects, greenhouse gas abatement programs, or building wind farms.

### Waste

World Centric accepts an average of 58.11 pounds of compostables from employees and community members each month to help us offset our landfill usage of 25.37 pounds. We over-offset our landfill contribution by 32.74 pounds, or 129%. Combined, the office, its employees and local community members contribute 95.91 pounds of compostables each month. In order to further offset our landfill usage, World Centric is considering hosting local composting events.

According to current projections, World Centric's annual diversion will prevent 1,703.33 pounds of waste from getting into landfills and contribute 304.44 pounds. We are thus diverting 5.6 times the amount we are contributing.



Recycling saves energy and prevents carbon dioxide from getting into the atmosphere. In one year, we will divert 147.12 pounds of bottles and cans; of which approximately 73.56 is plastic. This saves 258.70 kWh<sup>9</sup> of electricity, enough to power World Centric for half a month. Recycling 403.80 pounds of paper in one year will prevent 12 pounds of CO<sub>2</sub> from getting into the atmosphere and save 1,413 gallons of water and 4 trees<sup>10</sup>.

## Offsets In Progress

### Energy

#### Energy Star Equipment

Switching all appliances and electronics to Energy Star Equipment.

#### Laptops

Replacing the remaining desktops with laptop computers (desktops consume up to 5 times more energy than laptops).



### Water

#### Water Project

Excavating water wells and purchasing water pumps in Rwanda.

#### Wastewater Project

Sponsoring projects that improve road surfacing and drainage, reduce nutrient run-off on farms and/or improve sewage management.



### Transportation

#### Carbon Sequestration

Donating to tree planting projects and greenhouse gas abatement programs.

#### Development Projects

Sponsoring the purchase and installation of efficient (smokeless) cooking stoves and small-scale solar village lighting projects.



### Waste

#### Community Compost

Accepting compostables from employees and community members.

#### Local Composting

Hosting local educational composting events.

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## REFERENCES

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US Census Bureau. "Fact Sheet - 2006." N.d. <http://factfinder.census.gov> "Average household size: 2.61" (90 gallons per day\*365 days \* 2.61 persons = 85,738.5 gallons per household per year. This translates to 7144.875 per household per month, or 9.55 CCF)
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8. Ecos Consulting. "Efficient Products: Computers" 2005. <<http://www.efficientproducts.org/computers/>> "The average desktop computer (without its accompanying monitor) now consumes 200 to 400 kWh per year of electricity. Laptops consume about 80 to 140 kWh" ( 400 kWh / 80 kWh = up to 5 times more efficient)
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10. Earth 911. "Energy Conservation: Energy Facts." N.d. <<http://www.earth911.org/master.asp?s=lib&a=energy/EnergyFacts.html>> "each ton saves 60 lbs. of air pollution... 17 trees and 7000 gallons of water" (403.8 lbs / 2000 lbs per ton = 0.2019) (0.2019 \* 60 lbs of air pollution = 12.114 lbs of air pollution) (0.2019 \* 17 trees = 3.44 trees ) (0.2019 \* 7000 gallons = 1413.3 gallons of water)