

# Greenhouse Gas Report

WD's global culture of environmental responsibility, accountability, and action.

Global climate change, caused by increasing concentrations of atmospheric carbon dioxide, is one of the most significant concerns facing our world today. As a corporate citizen, Western Digital (WD) is particularly sensitive to the effects of global climate change. The need to understand the science of climate change and to formulate appropriate policy to address scientific findings is intensifying with each passing day.

Scientists have indicated that, over the course of this century, the planet will experience the direct effects of global climate change, including increased temperatures, rising sea levels, higher risks of severe floods and storms, and a depletion of crucial natural resources. Climate change is a global problem, but its effects will be heavily felt at the local level. While there are steps that corporations can take to adapt to warmer temperatures, the greatest urgency is to prevent further climate change by reducing the emission of greenhouse gases (GHG). As an environmentally responsible company, WD is committed to this global effort.

WD is headquartered in Lake Forest, California; and employs over 27,000 people worldwide. Manufacturing facilities are in California, Malaysia, and Thailand; design facilities are in California and Thailand; and sales offices are maintained around the world. The company's storage products are marketed to leading systems manufacturers, select resellers, and retailers under the Western Digital and WD brand names.

In the initial phase of this effort, WD established a baseline of its GHG emissions relative to its global operations. Moving forward, this baseline allows WD to set measurements of current GHG emissions against the defined parameters for proposed emission reduction programs.

Facilities	Total Emissions*	Reactive Gases	Electricity	Fossil Fuels	Business Travel	Employee Commute
Manufacturing	212,211	546	179,735	4,552	21,742	5,636
Research & Development	25,479	-	23,192	439	942	907
Administrative	9,470	-	5,221	553	1,883	1,813
<b>Total</b>	<b>247,161</b>					

\* = Tons CO<sub>2</sub> Equivalent  
All values in metric tons equivalents

## GENERAL METHODOLOGY

This report contains the results of five separate analyses:

- Compressed reactive gases used in manufacturing semi-conductor wafers
- Electricity usage (by country)
- Fossil fuel usage
- Business travel
- Employee commute

The purpose of this inventory is to provide baseline information that allows WD to make informed and effective policy decisions. These decisions include how we design and build our products, operate our facilities, recycle materials, and handle our wastes.



### World Resource Institute – Greenhouse Gas Protocol Initiative

The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions. The GHG Protocol Initiative, a decade-long partnership between the World Resources Institute and the World Business Council for Sustainable Development, is working with businesses, governments, and environmental groups around the world to build a new generation of credible and effective programs for tackling climate change.

It consists of two modules:

**Corporate Accounting and Reporting Standards:** Methodologies for businesses and other organizations to inventory and report all of the GHG emissions they produce. (“Corporate” in this context is meant to refer to both private and public sector organizations).

**Project Accounting Protocol and Guidelines:** Geared toward calculating reductions in GHG emissions from specific GHG reduction projects. The Project Protocol is the most comprehensive, policy-neutral accounting tool for quantifying the greenhouse gas benefits of climate change mitigation projects.

The GHG Protocol provides the accounting framework for nearly every GHG standard and program in the world — from the International Standards Organization, the EU Emissions Trading Scheme to the California Climate Registry — as well as hundreds of GHG inventories prepared by individual companies.

The GHG Protocol also offers developing countries and their governments an internationally accepted management tool to help their businesses compete in the global marketplace making informed decisions about climate change.

### INVENTORY RESULTS

The operation of WD’s manufacturing, research & development and administrative activities resulted in the net emission of approximately 247,000 metric tons of greenhouse gases in our fiscal year of July 2006 to June 2007. The vast majority of these emissions resulted from manufacturing operations, accounting for 85% of the total. Research & development accounted for another 10.6% of the total company emissions. While administrative activities accounted for the remainder of emissions.

At our facility in Fremont, California we produce wafers which are treated as semi-conductors by the GHG Protocol Initiative. There are two compressed gases which are deemed reactive and contributors to GHG emissions. Usage amounts are converted to carbon dioxide equivalents in calculation within the GHG Protocol supplied.

TABLE 2 - Reactive Gases Emissions for Western Digital			
Facilities	Total Emissions*	Silicon Hexafluoride	Nitrogen Trifluoride
Manufacturing	546	488	58
* = Tons CO <sub>2</sub> Equivalents All values in metric tons equivalents			

The largest contributor to WD’s CO<sub>2</sub> footprint comes from purchased electricity. The greatest portion of this is the heating, ventilation, and air conditioning (HVAC) of WD buildings. WD also uses electricity to produce wafers, assemble head stacks, assemble the hard drives, test the hard drives, provide a clean environment for this work, and conduct research & development activities.

TABLE 3 - Purchased Electricity Emissions for Western Digital			
Facilities	Total Emissions*	Kilowatt Hours	Emission Factor
Manufacturing			
Facility # 1	12,130	22,800,000	532
Facility # 2	102,047	189,678,760	538
Facility # 3	46,118	85,721,800	538
Facility # 4	19,440	53,275,289	365
Research & Development	23,192	63,555,893	365
Administrative			
Facility # 1	403	1,103,134	365
Facility # 2	4,818	13,204,562	365
Total	208,148		
* = Tons CO <sub>2</sub> Equivalents All values in metric tons equivalents			

WD uses fossil fuels to heat buildings, run emergency generators (for power), provide cafeteria services (in some locations), and to move materials and transport people. The largest fossil fuel use is natural gas.

In 2007, WD continued making efforts to reduce emissions by replacing a boiler at the Fremont facility with a much more efficient unit. WD continues to look at opportunities to reduce our fossil fuel usage including, for example, heat recovery.

TABLE 4 - Fossil Fuels Emissions for Western Digital						
Facilities	Total Emissions*	Natural Gas	Diesel	Propane	Gasoline	LPG
Manufacturing	4,552	4,381	86	-	84	1
Research & Development	439	439	-	-	-	-
Administrative	553	550	2	0	-	-
<b>Total</b>	<b>5,544</b>					
* = Tons CO <sub>2</sub> Equivalents All values in metric tons equivalents						

In conducting our business as a worldwide company, WD creates emissions resulting from business travel. This calculation also includes air travel as well as the rental cars used in visiting customers, suppliers, and work locations around the globe.

TABLE 5 - Business Travel Emissions for Western Digital			
Facilities	Total Emissions*	Air Travel	Ground Travel
Manufacturing	21,742	21,736	6
Research & Development	942	939	3
Administrative	1,883	1,877	6
<b>Total</b>	<b>24,567</b>		
* = Tons CO <sub>2</sub> Equivalents All values in metric tons equivalents			

Although not considered part of company operations, emissions from WD employees who drive to and from work were analyzed to assess their relative contribution to the company's carbon footprint. To determine the figures for our U.S. facilities, WD used a government report, State of the Commute Report – 2006, issued by the Southern California Association of Governments. This report provides averages for all California commuters. According to the report, the average commute distance is 19.2 miles one-way. This information, along with WD's employee head count was utilized in the GHG Protocol calculation. For our overseas facilities, fuel usage is tied to the transportation of workers to company facilities.

TABLE 6 - Employee Commute Emissions for Western Digital			
Facilities	Total Emissions*	Distance Based	Fuel Usage Based
Manufacturing	6,724	1,088	5,636
Research & Development	544	544	-
Administrative	1,088	1,088	-
<b>Total</b>	<b>8,356</b>		
* = Tons CO <sub>2</sub> Equivalents All values in metric tons equivalents			

## ENVIRONMENTALLY-FRIENDLY PRODUCTS

In July 2007 WD announced a new, environmentally-friendly GreenPower™ platform for our desktop, enterprise, and consumer electronics hard drive products. Environmental sustainability is a key factor of global citizenship at WD and the company is committed to reducing its environmental impact, as well as that of its customers, partners, and suppliers by providing a variety of energy-efficient storage solutions for customers. WD's new GreenPower platform can save consumers up to 40% in hard drive power consumption or as much as \$10 per drive per year. On a large scale, those savings could result in significant bottom-line IT operations cost reductions, as well as a reduced impact on the environment. Power savings can be even greater when storage consolidation is taken into account. Storage is one of the biggest consumers of energy in a data center. In particular, a single non-green 1 terabyte hard drive will typically have a power consumption rating greater than 13.5 watts. Replacing this drive with the GreenPower platform hard drive (equivalent capacity) can cut that rating by over 5 watts, thus reducing heat and power consumption by a significant amount.



## Compliance with RoHS and WEEE Directives

WD products manufactured and sold worldwide after August 1, 2005, meet or exceed Restriction of Hazardous Substances (RoHS) compliance requirements as mandated by the European Union for electrical and electronic products. The RoHS Directive 2002/95/EC of the European Parliament, which was effective in the EU beginning July 1, 2006, aims to protect human health and the environment by restricting the use of certain hazardous substances in new equipment and consists of restrictions on lead, mercury, cadmium, and other substances. The Waste Electrical and Electronic Equipment (WEEE) directive was developed to minimize the disposal of electrical and electronic equipment into landfills. WD hard drive products and packaging include the WEEE symbol in support of this directive.

## SUPPLIER COMPLIANCE

WD has conducted and continues to conduct very extensive tests regarding the use of environmentally compliant materials in all of its components. WD requires all component suppliers meet WD's environmental specification, titled "WD's Environmental Guidelines for Materials, Components and Products." This 20-page specification sets forth the maximum threshold limits for restricted, prohibited, and managed substances and requires suppliers to adhere to all applicable laws. In addition, the specification states that all WD suppliers and sub-suppliers will be expected to complete environmental declaration forms for all new materials and components, based on a combination of knowledge of their incoming raw materials, process review, and their own analytical testing and certification data. Suppliers are required to maintain documented records, made available to Western Digital, indicating which measures are used to ensure compliance to the specification. WD reviews each suppliers' declaration of compliance with WD's environmental specification during the launch of every new hard drive program and also tracks this together with third party analytical lab data by component in our environmental compliance database. In addition, the company maintains strict requirements with respect to supplier process/material change requests. Suppliers are also required to keep records of their in-process tests to ensure compliance to the approved process management plan and the use of approved materials. These are regularly audited by WD.

## CONCLUSION

Global climate change, caused by an increase in the concentration of atmospheric greenhouse gases, is one of the greatest challenges facing civilization. Potential climate change impacts include increased temperatures, changing precipitation patterns, increased frequency of destructive storms, and rising sea levels just to name a few. Improved environmental business procedures are necessary to help preserve our global ecology for future generations. WD is taking positive steps within its facilities to limit emissions, encouraging environmental consciousness in employees worldwide, and continuing to lead the way by developing some of the most eco-friendly products on the market today. WD recognizes the critical importance of acting now to reduce its contribution to this global crisis.



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One gigabyte (GB) = One billion bytes. One terabyte (TB) = One trillion bytes. Total accessible capacity varies depending on operating environment.