

Climate Neutral Network Enterprise Protocol

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Climate Neutral Network

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I. Introduction

Climate Neutral Network and the Climate Cool™ Certification

Formed in 1997, the Climate Neutral Network is a non-profit organization dedicated to helping companies, communities and consumers achieve a net zero impact on the earth's climate. Building and promoting a Climate Cool™ market place through the development of profitable products and partnerships is the core mission of the Network.

The network provides a science-based "Climate Cool™" certification. To counteract the climate impacts of products, services or operations, certification requires that a company create a portfolio of projects that include internal, on-site reductions of greenhouse gas emissions and external offset projects which "zero" out the company's emissions. The philosophy is to encourage businesses to reduce or eliminate GHG internally first, then to buy external offset projects to offset the remaining GHG emissions.

A number of leading environmental organizations, including Conservation International, the Center for Neighborhood Technologies, the Natural Resources Defense Council, the Nature Conservancy, Rocky Mountain Institute and the World Resources Institute serve on the Network's Environmental Advisory Board (EAB). This EAB helped the Network develop the Climate Neutral Network "Design Principles", Enterprise, Product and Offset protocols and the Climate Cool™ Certification to create a "gold standard" for business. Our goal is to develop a highly credible standard that will result in absolute CO₂ reductions and that will give companies engaging in Climate Neutral initiatives reasonable assurance that their efforts will have the buy-in of the mainstream environmental activist community. By setting this high standard for integrity, we have developed a protocol that is likely to meet any future government GHG standard. The EAB currently serves as the Network's standards setting body.

Organizations can seek to have any of the following certified:

- Products
- Services
- Enterprises
- Events

Product and service certifications cover the greenhouse gas emissions "cradle to grave", throughout the value chain. Enterprise certifications cover the greenhouse gas emissions "dock to dock", from the point where materials hit the company's docks to the point where they are delivered to the customers' docks. An enterprise certification is for a one year period. An enterprise may be re-certified each year after submitting a re-certification application. An Event certification covers all the emissions from energy use in the venue, and transportation and hotel rooms for participants.

This protocol is intended to provide practical guidelines to businesses, third party certifiers and other parties interested in obtaining Climate Neutral Network's "Climate Cool™" Enterprise certification.

The Climate Neutral Network (the Network) has developed the following resources to aid you in developing an enterprise emissions inventory, preparing a Climate Cool™ Enterprise Application and certifying your Enterprise as Climate Cool™:

- ***The Enterprise Protocol*** This protocol provides the guidelines needed to calculate an enterprise emissions inventory. It includes a description of the emissions you must include, the default values you may use in your calculations, and provides appropriate methods of calculations.
- ***Metrics Spreadsheet*** – an excel spreadsheet developed to assist you in calculating your inventory emissions. Default values and emission factor lookup tables are included in the spreadsheet. (see Appendix 5).
- ***Getting from CARROT to Climate Neutral*** – this document summarizes the changes that must be made in an enterprise emissions inventory estimated using the CARROT tool for the inventory to qualify for a Climate Cool™ certification. (pending).
- ***Climate Neutral Network Pre-Certified Offsets*** – any offsets on this list have been “pre-approved by the Network’s Environmental Advisory Board and may be included in a Climate Cool™ offset portfolio application. This list is subject to modification. (see Climate Neutral Network Offset Protocol, Appendix 2).
- ***Guide to Preparing an Application for Climate Cool™ Certification.*** (see appendix 6)
- ***Overview of the Certification Process*** (see appendix 7).
- ***Technical Assistance and Consulting Services*** – The network provides technical assistance and business development consulting services on a fee for service basis.

Overview of the Enterprise Protocol Development

The following Climate Neutral Network Design Principles guided the development of this Enterprise Protocol and provide the principles and intent of the Network’s rules to aid in making any necessary subjective decisions:

1. The boundary used by the Climate Neutral Network for an enterprise is from “dock to dock”: starting at the receiving dock of the company and ending when the company’s goods or services reach the company’s customer.
2. The boundary is expanded beyond the company’s “dock” for electricity and natural gas to include transmission losses.
3. Materiality – you may set aside emission sources which either individually or in total, are less than 5% of your total emissions (and therefore are not a material portion of your enterprise’s emissions).
4. GHG emissions are quantified in metric tons CO₂ equivalent according to the IPCC global warming potential for a one hundred-year horizon.

Comparison with Other Greenhouse Gas Accounting and Reporting Systems

GHG Protocol

The Network's protocol was developed to be consistent with the GHG Protocol.¹ However because of the unique purpose of Climate Neutral Network's use of the protocol, there are several differences. If you have already used the GHG Protocol to estimate your current year enterprise GHG emissions and have included the GHG Protocol Scope 3 emissions required for Climate Cool™ certification, you may submit that emissions inventory after making the following adjustments:

- 1605B rather than IPCC or DETR mobile combustion emission factors must be used to estimate mobile emissions for company's reporting domestic emissions
- Air travel emissions should be multiplied by 2 to account for the climate impacts of non-CO₂ radiative forcing such as vapor trails and cloud formation at flight altitudes (use 1.28 lbs CO₂e/passenger mile)

A more detailed comparison is included in Appendix 1.

California Climate Action Registry

If you have already calculated or plan to estimate, certify and register your enterprise inventory with the California Climate Action Registry you will need to make the following adjustments to use that inventory for your Climate Cool™ application:

- A baseline year report is not required for Climate Cool™ certification
- Your geographical scope must be nationwide
- You must include emissions from facilities or entities for which you have significant, long term influence and that are core to your company's business. You must note this exception to the California Climate Registry protocol in your report (see discussion in this protocol). This reporting requirement is consistent with the GHG Protocol accounting guidelines
- You must include specific indirect emissions noted in this protocol (employee commuting, business travel, product transport from the company to the company's customer, and offsite waste disposal at landfills)
- You must use an air travel emission factor of 1.28 lbs CO₂e/passenger mile

¹ The GHG Protocol – a corporate accounting and reporting standard. A product of the World Business Council for Sustainable Development and the World Resources Institute <http://www.ghgprotocol.com>

Organization of the Protocol

The development of a Climate Cool™ Enterprise application requires development of an enterprise emissions inventory, development of internal reductions and an offset portfolio to zero out your enterprise emissions and preparation of the application.

Section II of this protocol describes the development of an emission inventory as outlined below.

Step 1: Establish Boundaries and Accounting Year

- General Boundaries – Geographical, Organizational and Operational
- Activities Significantly Influenced
- Materiality
- Accounting Year

Step 2: Identify and Calculate GHG Emissions Inventory

- Indirect Energy
 - Purchased facility electricity including grid losses
- Stationary Combustion
 - Facility fuels
 - Biomass
- Mobile Combustion (Transportation)
 - Employee travel in company owned or controlled vehicles and corporate aircraft
- Other Indirect Emissions Transportation Related
 - Employee commuting
 - Employee business travel in non-company owned vehicles and airplanes
 - Product transportation from company to customer
- Process Emissions
- Fugitive Emissions
- Other Indirect Emissions Non-Transportation Related
 - Emissions from outsourced or contracted activities under significant influence (see discussion below)
 - Offsite waste Disposal
 - Purchase of Climate Cool™ products

Step 3: Document and Summarize

Section III describes the development of internal reductions, offset projects and an offset portfolio. Section IV, provides guidance on how to prepare a Climate Cool™ Enterprise Application. Finally, Section V provides a sample enterprise Climate Cool™ application. The Appendices include tables of a variety of default factors for use in your enterprise emissions calculations and sample pages from the Climate Neutral Network metrics spreadsheet. The Guide to Preparing a CLIMATE COOL™ Enterprise Certification Application is included in Appendix 6.

II. Development of an Enterprise Emissions Inventory

Step 1: Establish Boundaries and Accounting Year

The first step in establishing your enterprise emission inventory is to define your *geographical, organizational* and *operational boundaries* for the selected accounting year.

Geographical Boundaries – Your geographical boundaries define that part of your organization that you wish to certify as Climate Cool™. These boundaries may be your entire worldwide organization or merely your U.S. based operations.

Organizational Boundaries – For those facilities within your organization’s boundaries that are wholly owned, you should report all of the associated emissions from activities dock to dock (i.e. from the company’s receiving dock to the point at which the “goods” or “services” reach the customer). The customer might be a secondary manufacturer, a retailer, wholesaler or end user depending on the company’s operational structure.

For those facilities and operations that you have, for example, a partial ownership in, lease or hold an operating license on, you have two options for determining the share of emissions: management control or equity share. The GHG protocol² provides a definition of control and an accounting guideline for reporting GHG emissions on the basis of control and equity share that must be followed. We recommend choosing to report based on management control.

If you are subject to contracts that define your ownership and/or emissions responsibility, these arrangements should take precedent over management control and equity share options.

For a more detailed discussion of organizational boundaries – see Chapter 3 of the GHG Protocol.

Operational Boundaries – Define which direct and indirect emissions you will include in your inventory. Categories of operational boundaries which must be included are shown in Table 1. This table includes both direct and indirect emissions. In GHG Protocol terms, your operational boundaries must include Scope 1 (direct GHG emissions), Scope 2 (GHG emissions from the import of electricity or steam), and the Scope 3 (other indirect) emissions shown in Table 1.

² The Greenhouse Gas Protocol, a corporate accounting and reporting standard. World Business Council for Sustainable Development & World Resource Institute, Chapter 3. Also see <http://www.ghgprotocol.org>.

Table 1: Emission Sources to be Included in Inventory³

Category of Emissions	Typical Sources
Indirect Energy (purchased electricity)	Facility electricity (including 7% T&D losses)
Stationary Combustion	Facility fuel use including natural gas for production of steam, heat or electricity on site
	Co-generated heat or electricity purchased from a CHP plant
	Purchased steam, heating or cooling
Mobile Combustion (Transportation)	Employee travel in company owned or controlled vehicles and corporate aircraft
Other Indirect Emissions Transportation Related	Employee commuting
	Employee business travel in non-company owned vehicles
	Product transportation
Process Emissions	Emissions from carbon intensive processes
Fugitive Emissions	
Other Indirect Emissions Non-Transportation Related	Emissions from outsourced or contracted activities under significant influence (see discussion below)
	Offsite waste disposal
	Purchase of Climate Cool™ products

Activities under Significant Influence – For a Climate Cool™ certification, you must include emissions from activities that are integral to your business (e.g. activities that suppliers or customers undertake during the life cycle of the product) that are shared with other entities or customers, for which you may not own or have any voting interests⁴ but do have significant, long term influence. This might include outsourced or contracted activities for which your company has significant influence. You must include emissions from these activities in your inventory if a) they are activities over which management has significant influence; b) the company benefits directly from the activity, and c) the activity is core to the company’s business. The portion of emissions from those activities that must be included is proportional to the amount of influence the company can exert on the activity. Two examples follow:

³ All of these emission sources are subject to the materiality test and therefore the sources covered in particular certifications may vary.

a). A Direct Mail Retailer: for a direct mail retailer, catalogs are an essential part of the company's operations: catalogs are essentially their equivalent of a retail store. Even though a direct mail retailer owns no part of the catalog manufacturing operation they do have control over the quantity and quality of paper that they use. Therefore, because catalogs are a core part of the retailer's business, and the retailer exerts significant control over the production's parameters of the catalogues, 100% of the emissions associated with the paper used in the catalogs should be included in the company's enterprise inventory.

b). A Consumer Product Company: A consumer products company sells its products through a network of independent sales people who operate their own small businesses. These sales people do a lot of driving to reach their customers and are provided incentives for superior achievement such as cars and airline tickets by the consumer product company. Thus the driving that the sales force does is critical to the company's business model. While this driving is considered a part of the company's core operations, the company has limited control over the kind of cars driven by the sales force and the number of miles they drive. In this situation, emissions from the automobiles driven by the sales force would be a shared liability and the consumer product company should include half of the resulting emissions in its inventory.

Materiality – As noted in the design principles, Climate Neutral Network has established a materiality clause to eliminate the need for applicants to estimate what may be many very small and inconsequential emission streams. Similar to the California Registry's General Reporting Protocol, you may set aside emission streams that do not represent either individually or in total, a material portion of your GHG emissions. You must report no less than 95% of your enterprise emissions.

Accounting year – Finally, you must determine the Accounting year that you will be certifying. Emissions should be calculated for a one year, "current year" time period. Current year should be the same time frame as the enterprise's current fiscal year.

Step 2: Identify and Calculate GHG Emissions Inventory

Enterprise inventory emissions typically fit in one of the seven categories shown in Table 1. A methodology for determining inventory emissions in each category is described below. The Network's metric spreadsheet⁵ can also be used to perform the calculations. The GHG protocol contains an overview of typical direct and indirect GHG emissions sources organized by GHG Protocol Scope and industry sectors.⁶ This may be used as an initial guide to identify your major GHG sources. Use the listing for Scope 1, 2 and 3 GHG emissions.

⁵ The Metric Spreadsheet may be obtained from Climate Neutral Network.

⁶ <http://www.ghgprotocol.org/>

1. Indirect Energy

To determine emissions from fuel consumption, first determine what sources of fuel are consumed within the enterprise dock to dock boundaries. Then gather data to determine consumption and obtain (or use default) emissions factors to convert the fuel consumption to CO₂ emissions.

Data Required:

- Monthly utility bills
- Regional electricity emission factor (or use as a default Average Electricity Emission Factors by State and Region as listed in the 1605B Reporting Form – See Appendix 2)

Calculations:

Sample calculations are shown below but you should use the Climate Neutral Metrics spreadsheet or the California Climate Registry CARROT tool to perform your inventory calculations. The default emission factors are embedded in the spreadsheet and are shown in the equations below. Each of these calculations may need to be performed for each facility within your enterprise. Only aggregate emissions need to be reported to the Network.

Indirect Energy - Emissions from purchased electricity

$$\text{kWh consumed} \times \text{state avg. lbs CO}_2/\text{kWh} \times 1.08 = \text{lbs CO}_2 \text{ emitted}$$

Where state average adjusted emissions factors (lbs CO₂/kWh) can be found in Appendix 2⁷ and the 1.08 factors adds 8% for T&D losses.

OR if undifferentiated:

Gas: gas kWh used x 1.321 lbs CO₂/kWh = lbs CO₂ emitted

Coal: coal kWh used x 2.095 lbs CO₂/kWh = lbs CO₂ emitted

Petroleum: petroleum kWh used x 1.969 lbs CO₂/kWh = lbs CO₂ emitted

Default Values

Default values of lbs CO₂/unit of fuel are shown in the equations above.

2. Stationary Combustion

To determine emissions from on-site fuel consumption, first determine what sources of fuel are consumed within the enterprise dock to dock boundaries. Typical sources include natural gas, oil, and biogas. Then gather data to determine consumption and obtain (or use default) emissions factors to convert the fuel consumption to CO₂ emissions.

Data Required:

- Monthly utility bills and fuel purchase records for the inventory year

⁷ U.S. DOE, Energy Information Administration, Form EIA-1605 (2002), Appendix C. And at www.eia.doe.gov.

- Fuel and Energy Emissions Factors – See Appendix 3

Calculations:

Sample calculations are shown below but you should use the Climate Neutral Metrics spreadsheet or the California Climate Registry CARROT tool to perform your inventory calculations. The default emission factors are embedded in the spreadsheet and are shown in the equations below. Each of these calculations may need to be performed for each facility within your enterprise. Only aggregate emissions need to be reported to the Network.

Stationary Combustion - Emissions from Other Fuels⁸

Natural Gas:

$$\text{therms natural gas consumed} \times 11.708 \text{ lbs CO}_2/\text{therm} = \text{lbs CO}_2 \text{ emitted}$$

Propane:

$$\text{gallons propane consumed} \times 12.669 \text{ lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}$$

Distillate Fuel:

$$\text{gallons distillate fuel oil consumed} \times 22.384 \text{ lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}$$

(diesel fuel, fuel oil 1, 2 and 4)

Residual fuel (fuel oil 5 and 6):

$$\text{gallons residual fuel consumed} \times 26.033 \text{ lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}$$

Bituminous Coal:

$$\text{short tons bituminous coal consumed} \times 4,931.3 \text{ lbs CO}_2/\text{short ton} = \text{lbs CO}_2$$

Anthracite Coal:

$$\text{short tons anthracite coal consumed} \times 3,852.16 \text{ lbs CO}_2/\text{short ton} = \text{lbs CO}_2$$

Wood and Wood Waste:

$$\text{short tons wood waste consumed} \times 3,814 \text{ lbs CO}_2/\text{short ton} = \text{lbs CO}_2 \text{ emitted}$$

Note: emissions from sustainably managed biomass should not be added to your inventory as noted below under special considerations but should be reported to develop a complete picture of your energy profile.

Default Values

Default values of lbs CO₂/unit of fuel are shown in the equations above.

Special Considerations:

⁸ U.S. DOE, Energy Information Administration, Form EIA-1605 (2002), Appendix B. And at www.eia.doe.gov.

Biomass - If you burn biomass at your facility (wood, biodiesel, etc) that is sustainably managed (see glossary) then the emissions from this biomass should be zero. If the biomass burned is not sustainably managed, then you do need to include the resulting emissions using the fuel emissions factors noted above.

Co-generation – follow the GHG Protocol guidelines for reporting co-generation related emissions.

Purchased steam, heating or cooling – follow GHG Protocol guidelines for reporting these emissions.

3. Mobile Combustion (Transportation)

Transportation includes direct emissions from employee travel in company owned or controlled vehicles and aircraft. Next gather the necessary data to quantify the transportation fuel use and calculate the resulting emissions as described below.

A list of data required and sample calculations to perform your inventory calculations are shown below and are embedded in the Climate Neutral Metrics spreadsheet. Default emission factors are also shown below. Each of the calculations may need to be performed for each facility within your enterprise. As with all calculations, the emissions should cover the designated one year time period. Only aggregate emissions need to be reported to the Network.

Company Cars

Data Required

- Fuel purchase records if available. If records are dollars spent, use an average dollar per gallon to convert to gallons purchased. If fuel purchase records are not available, company records on miles driven and the average company car fleet efficiency (based on the above referenced EPA fuel economy website or the use the default US fleet efficiency value of 19.7 mpg for mixed auto and light truck/SUV)

Calculations:

$$\boxed{\text{Gallons fuel purchased} \times \text{lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}}$$

OR

$$\boxed{\text{Miles/year driven} \times \text{average mpg} \times \text{lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}}$$

Defaults:

- Average mpg = 19.7 mpg
- lbs CO₂/gallon gas used = 19.56

Company Aircraft

Data Required

- Actual gallons company aircraft fuel purchased

Calculations:

$\text{Gallons aviation gasoline purchased} \times 18.355 \text{ lbs CO}_2/\text{gallon} \times 2 = \text{lbs CO}_2 \text{ equivalent emitted}$

Defaults:

- lbs CO₂/gallon aviation gasoline = 18.355
- Multiplier of 2 used to account for the full spectrum of greenhouse gases emitted when fuel is burned in the atmosphere
- Note – if fuel is purchased in barrels – the emission factor is 770.92 lbs CO₂/barrel (or 152.72 lbs CO₂/MBTU)

See special considerations for air travel in Appendix 4 to understand how this multiplier was established.

4. Other Indirect Emissions from Transportation

Other indirect transportation emissions include both from employee commuting and travel in non-company owned vehicles and aircraft, and emissions from product transportation between the company and its customer for the selected year. To determine emissions from mobile combustion (transportation), first determine what employee transportation activities should be included. Next determine what product transportation activities need to be accounted for. Product transportation is that required to transport the finished products or services to the enterprise’s customer. As noted before, an enterprise’s customer might be the end user, retail outlets, distributors or even another enterprise. Each enterprise must define its customer. Next gather the necessary data to quantify the transportation fuel use and calculate the resulting emissions as described below.

A list of data required and sample calculations to perform your inventory calculations are shown below and are embedded in the Climate Neutral Metrics spreadsheet. Default emission factors are also shown below. Each of the calculations may need to be performed for each facility within your enterprise. As with all calculations, the emissions should cover the designated one year time period. Only aggregate emissions need to be reported to the Network.

Employee Commuting

Data Required

- Number of employees that commute
- Distance each employee commutes (or use default national average commute distance of 23.7 miles roundtrip)⁹

⁹ US Department of Transportation, 1995 National Personal Transportation Survey: Summary of Trends, Table 25. At www.cta.ornl.gov/npts/1995/Doc/trends_report.pdf
Note: the U.S. Department of Transportation, 2001 National Household Travel Survey is now available but has not yet been analyzed for this protocol. It is available at: http://nhts.ornl.gov/2001/html_files/introduction.shtml

- Fuel efficiency of vehicles driven either using actual or using average fuel economy for the type of vehicle driven. EPA fuel economy figures are available at <http://www.fueleconomy.gov/feg/>. This website provides average fuel economy for city driving and average fuel economy for highway driving for different makes and models. Unless you have specific information to indicate otherwise, you may assume as EPA does that 45% of your vehicle's mileage is highway driving and 55% if city driving. If your employees drive more than one type of vehicle, you must calculate this for each vehicle or use default average fleet fuel efficiency of 19.7 mpg)

Note: some companies conduct an employee survey to obtain this information.

Calculations:

The following equations can be used (1) for each employee (if data on commute distance and mpg of vehicle driven for each employee is known; (2) for the average employee is data on average commute distance and mpg are know; or (3) to estimate an average lbs CO₂ emitted based on average default data for commute distance and vehicle mpg.

$$\boxed{\# \text{ employees} \times \# \text{ days worked/year/employee} = \text{total employee days/year}}$$

$$\boxed{\text{Total employee days/year} \times \text{average employee commute} = \text{total miles/year}}$$

$$\boxed{\text{Miles/year} \times \text{average mpg} = \text{gallons gasoline used}}$$

$$\boxed{\text{Gallons gasoline used} \times \text{lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}}$$

Defaults:

- Typical number days worked/year = 240
- Average employee commute = 23.7 miles
- Average mpg = 19.7 mpg
- lbs CO₂/gallon gas used = 19.56

Business Travel in Non-Company Owned Vehicles, trains, or aircraft

Data Required

- Number of miles traveled by non-company owned automobile (if material)
- Number of miles traveled by air OR if not available, number of tickets purchased and average miles per trip
- Number of miles traveled by train OR if not available, number of tickets purchased and average miles per trip

Calculations:

If emissions from this source are material, and depending on the type of data available:

$$\boxed{(\text{Total miles driven} / \text{average mpg}) \times \text{lbs CO}_2/\text{gallon} = \text{lbs CO}_2 \text{ emitted}}$$

Travel by Plane

Actual employee miles traveled OR

Total no. of employee trips x average miles/trip = total employee-miles traveled

Employee-miles traveled x lbs CO₂ equivalent/passenger mile = lbs CO₂ equivalent emitted

Defaults:

- lbs CO₂ equivalent/passenger mile air travel = 1.28

Note – we have multiplied the standard air travel emission factor by 2 to obtain 1.28. See special considerations section below to understand how this factor was established.

- Average miles per trip = 1,190¹⁰

Travel by Other Means Train (Intercity Rail – Diesel)

Calculations:

Total No. of employee trips x average miles/trip = total employee-miles traveled

Employee-miles traveled x lbs CO₂/employee mile = total lbs CO₂ emitted

Defaults¹¹:

Train (Intercity Rail – Diesel e.g. Amtrak)

- 0.42 lbs CO₂ emitted/passenger mile

Light Train/Subway travel (electric):

- 0.35 lbs CO₂ emitted/passenger mile subway travel

InterCity Rail (electric)

- 0.35 lbs CO₂ emitted/employee mile commuter rail travel

Urban Bus travel (diesel):

0.66 lbs CO₂ emitted/passenger mile intercity bus travel

Product Transport

There are at least five different ways to calculate the greenhouse gas emissions from product transportation. The decision on which method to use is driven by the kind of data that is available. You are expected to use the most accurate method that your data allows. The various methods for calculating the emissions from product transportation are

¹⁰ FAA Statistical Handbook of Aviation, Table 6.3, 1996. <http://api.faa.gov/handbook96/toc96.htm>

¹¹ WRI, http://www.safeclimate.net/business/measuring/business_travel_emissions.xls.

listed in order of their accuracy and therefore preference: fuel consumption; mileage and mpg; fuel expenditures; tons of product and distance; and cost of transportation.

Data Required

- CO₂ emitted by mode of transport factors (or use default factors shown below)
- AND data for one of the following methods (in order of preference):
- For Method 1: gallons of fuel purchased in the selected year
 - For Method 2: total miles driven and average vehicle fuel efficiency
 - For Method 3: annual expenditure on fuel and average price/gallon
 - For Method 4:
 - Average tones-miles for each mode of shipment (use organization-wide data to record average tonnage of product shipped to the enterprise's customers) OR
 - Number of shipments for each product and Average distance per shipment
 - For Method 5: obtain total cost of product transport per 1,000 lbs of product - in cases where a company's products share trucking space with other freight, this method estimates that portion of the shipping emissions for which the company must take responsibility.

Calculations:

Method 1: Fuel Consumption

If you know the total gallons of fuel purchased in the selected year:

$$\boxed{\text{Total Gallons fuel consumed} \times \text{lbs CO}_2/\text{gallon} = \text{Total lbs CO}_2}$$

This approach is consistent with the GHG Protocol approach.

Method 2: Mileage and MPG

If you don't know total gallons of fuel purchased but do know total miles driven and can estimate average vehicle fuel efficiency:

$$\boxed{(\text{Total miles driven} / \text{avg. mpg}) \times \text{lbs CO}_2/\text{gallon} = \text{Total lbs CO}_2}$$

Method 3: Fuel Expenditures

This method may be used if data is not available for the above methods and if fuel expenditures are known. In this case total the annual cost of fuel by fuel type for each facility within the enterprise. Then:

$$\boxed{\text{Expenditures on fuel} / \text{average cost fuel/gallon} \times \text{lbs CO}_2/\text{gallon} = \text{Total lbs CO}_2}$$

Method 4: Tons of Product and Distance Method

Most companies do not control their own shipments and therefore do not have available data regarding the amount of fuel consumed or purchased. If this is the case for your

enterprise, and if the company's products share trucking space with other freight, you will have to estimate emissions by total weight shipped and total distance shipped

Tractor trailer freight

Number shipments x average distance (miles/shipment) = total product –miles shipped

Total product-miles shipped x average tones of product shipped = total tone-miles shipped

Total tone-miles shipped x lbs CO₂ emitted per tone-mile = total lbs CO₂ emitted

The above three equations also apply to train freight, marine freight and air freight.

*Factors and Default Values **HOLD – still to be finalized:***

- Use EIA for domestic and IPCC for international fuel emission factors shown in Appendix 5.
- Truck emission factor¹² = 0.220 lbs CO₂ per tonne-mile **0.51 CO₂/ton-mile**
- Rail emission factor = 0.167 lbs CO₂ per tonne-mile **0.31 lbs CO₂/ton-mile diesel**
- Air emission factor = 3.082 lbs CO₂ per tonne-mile
- Marine emission factor = 0.036 lbs CO₂ per tonne-mile **0.03 lbs CO₂/ton-mile for ocean freighter, residual fuel**

Note – suggestions for how to reduce your transport emissions can be found on the EPA SmartWay Transport Initiative website.¹³

Sum the lbs CO₂ emitted for direct Mobile Combustion (Transportation) from employee travel in company owned vehicles and aircraft. Sum the indirect Mobile Combustion emissions from employee commuting, business travel in on-owned company vehicles and aircraft and from product transportation.

5. Process Emissions

Direct process emissions from industrial processes come from both the consumption of purchased fuel used to run process equipment and, for certain materials, from the processing of raw materials used in the product. Emissions from the consumption of purchased fuel were accounted for in the “Indirect Energy, purchased electricity” category above. You only need to add emissions from the processing of raw material to your enterprise inventory for the following carbon emission intensive industries:

¹² Thomas, Charles and Tennant, Tessa, “Creating a Standard for a Corporate CO₂ Indicator” Working Document Draft 2, 26 May 1998, UNEP, Economics, trade and Environment Unit.

¹³ See <http://www.epa.gov/otaq/smartway/index.htm>

- Aluminum
- Iron and steel
- Nitric acid
- Ammonia
- Adipic acid
- Cement
- Lime
- HFC-23 from HCFC-22 production
- Semi-conductor

Refer to the GHG Protocol sector specific worksheets¹⁴ for guidance on how to calculate process emissions. Once the different process gas emissions have been estimated, calculate the resulting lbs CO₂ equivalent using global warming potentials (GWP) for each gas.

Factors and Defaults:

Global Warming Potentials¹⁵

- Methane (CH₄) GWP = 23
- Nitrous Oxide (N₂O) GWP = 296
- Sulfur Hexafluoride (SF₆) = 22,200
- Chlorofluorocarbon (CFCs) = vary, see Appendix 7
- Hydrofluorocarbon (HFCs) = vary, see Appendix 7

These potentials have been revised to reflect the data in IPCC's Third Assessment Report (TAR).

6. Fugitive Emissions – fugitive emissions include emissions from intentional and unintentional releases such as equipment leaks from joints, seals, packing and gaskets, and from refrigerant leakage. Resources to help you calculate fugitive emissions where relevant include:

- Corporate GHG Accounting Calculations Tools, prepared under the GHG Protocol Initiative by the World Resources Institute and World Business Council for Sustainable Development (October 2001)
<http://www.ghgprotocol.org/standard/tools.htm>
- EPA Climate Leaders Inventory Protocol, U.S. Environmental Protection Agency (in development as of August 2002). EPA's protocol includes core modules addressing HFC emissions from refrigeration/air conditioning use
<http://epa.gov/climateleaders/index.html>
- California Climate Action Registry General Reporting Protocol, prepared by the California Climate Action Registry, October, 2002. This protocol

¹⁴ See <http://www.ghgprotocol.org/standard/tools.htm>

¹⁵ <http://yosemite.epa.gov/OAR/globalwarming.nsf/content/EmissionsNationalGlobalWarmingPotentials.html>

provides guidance on calculating fugitive emissions from refrigeration systems.

<http://climateregistry.org>

As with other emission sources, fugitive emissions only need to be reported if they are material.

7. Other Indirect Emissions non-transportation related

Other indirect emissions that must be included in the enterprise inventory are shown in Table 1 and described further below.

Emissions from Outsourced or Contracted Activities

This was discussed under organizational boundaries.

Offsite Waste Disposal Emissions

The methodology and emission factors needed to estimate emissions from municipal solid waste (MSW) disposal at three types of landfills, and at incinerators are provided below¹⁶.

Landfilling

When placed in landfills, organic materials generate methane (CH₄). These emissions are a result of anaerobic decomposition (i.e., decomposition taking place in the absence of oxygen). EPA was able to quantify the amount of CH₄ generated by various materials in landfills using research conducted by Dr. Martin Barlaz (Barlaz, 1997). The generation of CH₄ from landfilled waste takes place over many years; thus, the emission factors resulting from Dr. Barlaz's work reflect the "ultimate" CH₄ yield rather than the amount that any material will emit in a given year. CH₄ emissions from landfills are highly dependent on landfill gas collection and recovery practices. Consequently, EPA developed three sets of emission factors: one for landfills with no gas recovery, one for landfills with landfill gas recovery (including landfills that flare their gas or utilize it for energy), and a default factor that reflects the national average recovery practices. Details of the assumptions used to quantify CH₄ generation at municipal solid waste landfills are provided in EPA's report, *Solid Waste Management And Greenhouse Gases: A Lifecycle Assessment of Emissions and Sinks*, published in May 2002.¹⁷

Landfill disposal also results in carbon dioxide (CO₂) emissions associated with transporting waste materials to the landfill. The landfilling emission factor (see step 3 on the "Landfilling" sheet) is the sum of the landfill CH₄ emissions and CO₂ emissions from transportation to the landfill.

¹⁶ Courtesy of EPA – specific reference pending.

¹⁷ The report is available at the following website:

<<http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsReports.html>>.

Combustion

Combustion of municipal solid wastes leads to emissions of the greenhouse gases, CO₂ and nitrous oxide (N₂O). In accordance with International Panel on Climate Change (IPCC) guidance for greenhouse gas accounting, CO₂ emissions from biogenic sources that are sustainably harvested should not be counted in emission inventories because this source of carbon was originally present in the atmosphere, and would have eventually been released to the atmosphere through natural processes (IPCC/UNEP/OECD/IEA 1997). Thus, combustion-related CO₂ emissions from organic materials need not be included in emission inventories.

In addition to emissions from the combustion process, waste combustion also results in CO₂ emissions associated with transporting the waste to the incinerator. The emission factor for combustion is the sum of N₂O and non-biogenic CO₂ emissions from the combustion process, and CO₂ emissions from transportation to the incinerator (see step 3 on the “Combustion” sheet).

Data Required:

- Tons of waste sent to landfills
- Composition of waste in tons/component (e.g. tons of office paper, tons of corrugated cardboard, etc.) – if available otherwise use default composition
- Emission factors for various types of landfilled materials and if appropriate, for combusted waste materials (See defaults below or see the Climate Neutral Network Metrix Spreadsheet)

Calculations:

To develop an emissions estimate, the weight of each material landfilled/combusted is multiplied by the emission factor. In the example below, 1,000 tons of mixed office paper is disposed annually by the XYZ Company, in Ithaca, New York. The following steps are then taken to estimate GHG emissions from disposal of this material:

1. Determine the landfilling/combustion distribution of MSW disposal.

The user is to determine the most likely disposal scenario (in terms of landfilling versus combustion) for the waste material. If not sure whether waste is landfilled or incinerated, the user may consult the annual “State of Garbage” report published by BioCycle, which provides the fraction of waste in each state that is landfilled and incinerated.¹⁸ In this example, it is assumed that the 700 tons of the user’s waste is landfilled, and the remaining 300 tons is combusted.¹⁹

2. Identify the appropriate landfill emission factor and calculate emissions

¹⁸ Please note that the percentages presented in the BioCycle report are based on waste *generated*, not waste disposed. These percentages include recycled materials, in addition to materials that are combusted or landfilled. As a result, if users choose to use apportion their waste based on BioCycle’s distribution of landfilled versus combusted waste, they must develop revised BioCycle percentages based on the total material disposed (i.e., combusted or landfilled).

¹⁹ In most cases, there will be only one fate for the user’s waste – either landfilling or combustion. However, we include both in this example in order to illustrate how the emission factors are used.

In this example, the presence of a landfill gas collection system is not known, so the default emission factor will be utilized, or 0.38 MTCE per ton. Landfill emissions are calculated as follows:

$$\text{Landfill emissions} = (0.38 \text{ MTCE/ton}) \times 700 \text{ tons} = 266 \text{ MTCE}$$

3. Identify the appropriate combustion emission factor and calculate emissions

The emission factor for combustion of mixed office paper is 0.02 MTCE per ton. Combustion emissions are calculated as follows:

$$\text{Combustion emissions} = (0.02 \text{ MTCE/ton}) \times 300 \text{ tons} = 6.0 \text{ MTCE}$$

4. Calculate total emissions from MSW disposal.

The final step is simply to sum the landfilling and combustion emissions estimates. In this example, the total emissions from the disposal of 1000 tons of mixed office paper waste produced by the XYZ Company would be calculated as follows:

$$\text{Total emissions} = 266 \text{ MTCE from Landfilling} + 6 \text{ MTCE from Combustion} = 270 \text{ MTCE}$$

Defaults

Emissions Factors by Landfill Characteristics (MTCE/ton)

The emission factors presented below represent the total emissions in MTCE from landfilling one ton of each of the materials listed (i.e., methane emissions plus transportation emissions). If possible, users should select an emission factor based on the recovery practices at the landfill receiving their waste (i.e., with or without landfill gas recovery). If users are not sure of landfill gas recovery practices, they may use the default emission factor.

Material Landfilled	Default Landfill (Unsure of Landfill Gas Recovery Practices)¹	Landfill w/ Gas Recovery	Landfill w/ No Recovery
Corrugated Cardboard	0.32	0.13	0.49
Magazines/Third-class Mail	0.18	0.08	0.28
Newspaper	0.16	0.07	0.24
Office Paper	0.70	0.28	1.10
Phonebooks	0.16	0.07	0.24
Textbooks	0.70	0.28	1.10
Food Discards	0.20	0.09	0.31
Yard Trimmings	0.12	0.05	0.18

Mixed Paper			
Broad Definition ²	0.34	0.14	0.54
Office Paper Definition ³	0.38	0.16	0.59
Mixed Organics ⁴	0.16	0.07	0.24
Mixed MSW ⁵	0.17	0.07	0.27

Source: EPA's WASTE Reduction Model (WARM)

Combustion Emission Factors (MTCE/ton)

The emission factors presented below represent the total emissions in MTCE from combustion of one ton of each of the materials listed (i.e., combustion emissions plus transportation emissions).

Material Combusted	Total GHG Emissions Per Ton Combusted
Corrugated Cardboard	0.02
Magazines/Third-class Mail	0.02
Newspaper	0.02
Office Paper	0.02
Phonebooks	0.02
Textbooks	0.02
Food Discards	0.02
Yard Trimmings	0.02
Mixed Paper	0.01
Broad Definition ¹	0.02
Office Paper Definition ²	0.02
Mixed Organics ³	0.02
Mixed MSW ⁴	0.12

Source: EPA's WASTE Reduction Model (WARM)

References²⁰

Barlaz, M.A. 1997. *Biodegradative Analysis of Municipal Solid Waste in Laboratory-Scale Landfills*, EPA 600/R-97-071.

BioCycle. 2001. *The State of Garbage*, BioCycle, Journal of Composting and Recycling. Emmanus PA. December, 2001.

EPA. 1999. *U.S. Methane Emissions 1990-2020: Inventories, Projections, and Opportunities for Reductions*. Washington, DC.

²⁰ References provided by EPA. Specific reference pending.

IPCC/UNEP/OECD/IEA. 1997. *Revised 1996 Guidelines for National Greenhouse Gas Inventories*, 3 volumes. Intergovernmental Panel on Climate Change, United Nations Environment Programme Organization for Economic Co-Operation and Development International Energy Agency. Paris, France.

K. Liptay et al. 1998. *Use of Stable Isotopes to Determine Methane Oxidation in Landfill Cove Soils*, *Journal of Geophysical Research*, Vol. 103.

Total Indirect Emissions

Total indirect emissions are the sum of other indirect emissions related to transportation and other indirect emissions non-related to transportation.

Special Considerations

Climate Cool™ product purchase

If the enterprise purchases a certified Climate Cool™ product that would normally produce GHG emissions (such as Climate Cool™ air travel), and if the enterprise receives ownership of the emission reductions associated with the product purchase, then the emissions that would normally be attributable to that product are zero in the enterprise inventory.

Step 3: Document and Summarize

Once your calculations are complete, you should prepare a summary of the enterprise inventory emissions including a table summarizing emission sources and amounts per source. Guidelines to submitting a Climate Cool™ application are shown in Appendix 6. If you have calculated your inventory emissions using either the Climate Neutral Network's metrics spreadsheet or the CARROT, you may also submit a copy of the report from these tools. An example of an enterprise inventory calculation and documentation is shown in section IV.

III. Develop Internal Reductions, Offset Projects and Offset Portfolio

Internal Reductions

To obtain Climate Cool™ certification, a company must show significant commitment to reducing greenhouse gas emissions internally, then must purchase carbon offset projects to “zero out” the companies emissions. The goal is for a company to reach net zero emissions. Indicators of significant commitment include (but are not limited to):

- An internal GHG reduction plan
- Company GHG internal reduction targets & budget
- Company reputation and/or awards for progress in reducing energy intensity
- Energy audit and implementation plan and budget
- Letter from Executive Management confirming commitment

The following guidelines for an offset portfolio have been excerpted from Climate Neutral Network's Offset Protocol. For further detail regarding qualifying offset projects and an offset portfolio, see Climate Neutral Network's Offset Protocol.

Offset Projects

Offsets will fall into one of the three categories. A description of each offset category and how offsets fitting that category must be assessed during the certification process is included below.

- ***“Pre-Certified” Offsets*** – offsets on the Network's list of “pre-certified” offsets have been reviewed and approved by the Network's Environmental Advisory Board (EAB). Typically, these are pools of carbon offsets available for sale in the market. Including only pre-certified offsets in your offset portfolio will result in a simpler and lower cost certification. Certifiers will only need to confirm the selected offset project is on the Network's current list of pre-certified offsets.
- ***Standard Offsets*** – standard offset projects include project categories the Network's EAB has reviewed in the past and for which the Network has developed guidelines for calculating emission reductions. Standard offsets are typically a one time offset project rather than a pool of offsets available for sale. For example, the Network has reviewed and approved separate biodiesel offset projects for clients. If you are including standard offsets in your portfolio, you must use the Network's standard offset emission calculation guidelines to estimate the carbon benefit of the project. See the Network's website for a list of standard offset emissions estimation guidelines. This list is subject to change over time. Certification of an offset portfolio containing standard offsets will likely cost slightly more than a portfolio of pre-certified offsets.
- ***New Offsets*** – offsets that fall into the “New” offset category are categories of offsets that have not been assessed by the Network's EAB. An offset in this category must be sent to the Network's EAB for review and approval at the EAB's semi-annual review meeting. The Network charges a fee for this review service. Company's that include “New” offsets in their portfolio often chose these projects because they meet company specific criteria. For example, some company's chose offset projects that provide some benefit to their local community.

If you are including an offset that fits in the “Standard” offset or “New” offset category, see the Network's Offset Protocol to make sure the offset meets the Network's additionality screening criteria and for guidance on calculating the carbon emission benefit of the project. The Offset Protocol provides guidance in estimating the emission reduction resulting from the project and in the case of front-loaded projects, for discounting the value of those emissions over time. If you are including a “New” offset project in your portfolio, you must submit that project to the Network for EAB review. Contact Climate Neutral Network.

Offset Portfolio

The offset portfolio guidelines are designed to insure that the GHG reductions mirror the sources of GHGs, contribute to United States' goals for GHG intensity reductions and that companies are making all feasible and economical internal reductions prior to purchasing external offsets. You should confirm that your portfolio of offsets meets the following criteria.

Internal Commitment – has the company shown a commitment to reduce internal GHG?

Domestic – do 2/3rds of the total GHG reductions in the portfolio occur in the United States or Canada?

Sequestration – Are sequestration projects responsible for no more than 20% of the total GHG reductions in the portfolio?

Reflect GHG Sources – Are at least 60% of the GHG reductions in the portfolio reductions in fossil fuel emissions? OR do they reflect the GHG sources in your facility?

CO₂ Re-injection – do CO₂ re-injection projects constitute no more than 50% of the offset portfolio?

IV. Develop a Climate Cool™ Enterprise Application

Once you have estimated your organization's greenhouse gas emissions inventory and developed an offset portfolio, you must complete a Climate Cool™ Enterprise Application. The Guidelines to preparing a Climate Cool™ Enterprise Application are included in Appendix 6.

Once complete, this application along with backup emission calculations should be submitted electronically to:

Certification Director
Climate Neutral Network
155 B Avenue, Suite 220
Lake Oswego, OR 97034
(503) 697-2798
karen@climateneutral.com

V. Have Your Climate Cool™ Enterprise Application Certified

Next, your Climate Cool™ Enterprise Application must be certified by one of the Certifiers qualified by Climate Neutral Network. The Certification process is summarized in the following document: "Overview of the Certification Process" included in Appendix 7. A list of the qualified certifiers can be obtained from Climate Neutral Network at the above address.

VI. Example of an Enterprise Inventory Calculation and Documentation

This is an example of an enterprise inventory drawn from Shaklee's publication of Climate Neutral enterprise certification application (a public document, originally created by Trexler and Associates)

In this case, Shaklee's GHG footprint encompasses the following elements or components of them:

- ☐ Emissions resulting from regular business activities at their corporate headquarters and various other locations;
- ☐ Emissions from transportation of their products from manufacturer to end-user; and
- ☐ Emissions associated with activities of their independent sales force.

Shaklee owns and operates the following facilities:

- ☐ *Shaklee Corporate Headquarters, Pleasanton, California.*
- ☐ *Norman Manufacturing Facility, Oklahoma.* This facility conducts the manufacturing of Shaklee's vitamin products and nutritional supplements. There are actually two facilities located at Norman. Norman I is operated by Shaklee. Norman II is owned and operated by Yamanouchi Pharmaceuticals.

- ☐ **Hayward Research Facility, California.** This is a small office housing the R&D and Quality Control laboratory personnel. It conducts routine product testing (micro, ingredient quality, etc) and general research (packaging, etc).
- ☐ **LaPalma, California; Bedford, New Jersey; Dayton, Illinois.** These are Shaklee warehouses used to house products prior to shipping.

The following section lays out the emissions associated with each element of the footprint.

Commuting. As part of the *Climate Wise* program, Shaklee had already determined the number of employees at each facility as well as the average round-trip miles/day for commuters at each office. These numbers were used in conjunction with the CNN metrics of average miles per gallon and pounds of CO₂ per gallon of gasoline. The number of workdays was assumed to be 220. The emissions determined for this section may be slightly overestimated considering Shaklee's data gathering also determined that 30-40% of the employees at the Pleasanton and Hayward offices telecommute 1-2 days/week. In addition, the Pleasanton office issues monthly mass-transit passes to 60 full-time employees.

Electricity Usage. Data on monthly electricity usage (in kWh) for all Shaklee facilities was found in utility bills. In order to determine the CO₂ conversion factor, Adjusted Electricity Emissions Factors by State from the U.S. Department of Energy report, *Sector Specific Issues and Reported Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992, volume II* were used. The 1605(b) report contains the most recent and most complete set of data available. The emission rates for CH₄ and N₂O were also integrated into the conversion factors, although their impact on overall CO₂ equivalent tonnage was insignificant.

For the Pleasanton office, as the time period for the GHG footprint analysis coincided with the relocation of the company headquarters, electricity usage for the old San Francisco headquarters was used as proxy. For the electricity usage at the Norman Manufacturing Facility, only the electricity usage at the Norman I, the facility owned and operated by Shaklee, was used for the quantification.

Natural Gas Usage. Shaklee has records of the amount of natural gas used at all its facilities (in therms). The U.S. Energy Information Agency conversion factor of 8.2 lbs CO₂/therm was used. Utility bills for the San Francisco office were used as proxy for the same reasons described in the *Electricity Usage* section. For the natural gas usage at the Norman Manufacturing Facility, only the natural gas usage at the Norman I, the facility owned and operated by Shaklee, was used for the quantification.

Air Travel. Shaklee's travel services department supplied the number of air tickets used by Shaklee Corporation. Average number of air miles traveled by Shaklee employees was determined by using the Delta Airlines metric of average miles traveled per domestic ticket used. The commonly used metric of 0.5 lbs CO₂/air mile traveled was used.

Transport: Contract Manufacturers to Shaklee Warehouses. Shaklee provided total weight of product. Load capacity provided by the trucking company was assumed for double-load 48-foot tractor-trailers. The trucking company also provided miles per gallon for diesel. For average distance traveled per load, 1500 miles was assumed to be the average distance from manufacturing facility to Shaklee warehouse. The CNN conversion factor of 20 lbs CO₂/gallon diesel was used.

Transport: Shaklee Warehouses to End Users. Ninety-nine percent of Shaklee products are shipped to the end user via postal carriers. United Parcel Service is the primary delivery service utilized so their capacity of 20 tons per truck was used for the calculation. Shaklee warehouses are located near its primary customer bases therefore the average miles to end-user was calculated to be 200 miles. As it was assumed that the delivery trucks were not operating at full load capacity, a lower factor of miles/gallon was used to integrate these inefficiencies.

Sales Leader Travel. In regard to the Sales Leaders, while it was agreed that Shaklee does not exercise effective management and operational control over the activities of each of its independent distributors, Shaklee does provide incentive programs, in particular, its bonus car program and travel awards to sales conferences. For this reason, the CNN Environmental Review Panel determined that Shaklee should share responsibility for 50% of the emissions resulting from bonus car miles and bonus air travel purchased by Shaklee.

There are two components of Sales Leader travel. The first is bonus car usage. Shaklee awards bonus cars to Sales Leaders as an incentive program. As part of the *Climate Wise* program, Shaklee had previously calculated the number of miles driven expressly for Shaklee purposes, over and above personal travel, to be 12,000 miles/year. These numbers were used in conjunction with the CNN metrics of for average miles per gallon and pounds of CO₂ per gallon of gasoline.

The second component of Sales Leader Travel is airline miles. In 1999, there were a total of two Sales Leaders domestic conventions and one international convention that took place in Barcelona, Spain. The Delta metric of average air miles traveled was used for the domestic tickets and the number of air miles from Central United States to Barcelona was assumed for the international tickets. The metric of 0.5 lbs CO₂/air mile traveled was used.

CALCULATION OF SHAKLEE ENTERPRISE GREENHOUSE GAS EMISSIONS

1. Commuting

Total Miles/year (220 workdays)		
1	2,424,400	Pleasanton
	528,000	Hayward
	932,580	Norman
	186,846	LaPalma
	201,168	Bedford

208,208	Dayton
4,481,202	total

11 **1,738 Emissions from commuting**

2. Electricity Usage (all conversion factors in tons CO2/kWh)

1	2,361,998	Pleasanton office (using SF as proxy) (kWh)
3	0.000378	Conversion factor for California electricity generation
	3,093,986	Hayward Research Facility (kWh)
	0.000378	Conversion factor for California electricity generation
	752,510	LaPalma CSC (kWh)
	0.000378	Conversion factor for California electricity generation
	1,068,976	Bedford CSC (kWh)
	0.000433	Conversion factor for Illinois electricity generation
	1,229,459	Dayton CSC (kWh)
	0.000387	Conversion factor for New Jersey electricity generation
	11,370,150	Norman Manufacturing Facility (kWh)
	0.000836	Conversion factor for Oklahoma electricity generation

12,791 Total electricity emissions

3. Natural Gas Usage

1	22,588	Pleasanton office (therms)
1	54,715	Hayward Research Facility (therms)
1	93,991	Total natural gas usage for all 3 CSCs (therms)
	661,462	Norman Manufacturing Facility (therms)

4 **0.0041** Conversion factor for nat gas (tons CO2/therm)

3,414 Total nat gas CO2 emissions

4. Air Travel

1	1,050	Number of annual air tickets issued by Shaklee
5	1,956	Avg. miles/trip (r/t) - from Delta Airlines
2	0.00025	CNN CO2 conversion factor for air miles (CO2 tons/air mile)

513 Emissions from air travel (tons CO2)

5. Transport: Contract Manufacturers to Shaklee warehouses

1	9,802	Total weight of product shipped to CSCs (tons)
6	23	Load capacity of tractor trailers used for shipping (tons)
	426	Number of loads/year
7	1,500	Ave distance traveled/load (miles)
6	5.5	miles/gallon diesel
2	0.01	CNN conversion factor for tons CO2/ gallon diesel

1,162 Total Emissions from Transport

6. Transport: Shaklee Warehouse to End Users

1	9,802	Total weight of product shipped to end users(tons)
8	20	Load capacity of trucks (tons)
	490.1	Number of trips required to transport annual product wt.
9	200	Avg. miles/delivery to end user
10	2.8	miles/gallon diesel
2	0.01	CNN conversion factor for tons CO2/ gallon diesel

350 Total Emissions from Warehouse Transport

7. Sales Leader Travel

12	3,257	Total emissions for Sales Leader car travel
13	1,222	Total emissions for Sales Leader air travel

4,479 Total Emissions from Sales Leaders

24,448 Total Shaklee Corporate Emissions

Assumptions

CSC - Customer Satisfaction Centers

1. Data provided by Shaklee.
2. Data provided by CNN.
3. Emission rates taken from U.S. Department of Energy report Sector Specific Issues and Reported Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992, volume II.
4. Natural gas conversion factor determined from data provided by U.S. Energy Information Agency.
5. Provided by Delta Airlines.
6. Figures provided by trucking companies.
7. Distance calculated according to average distances between manufacturing facilities and CSCs.
8. Load capacity provided by United Parcel Services.
9. Distance calculated according to average distance between end-users and CSCs. Assumes CSCs are located close to customer base.
10. Number based on data provided by United Parcel Services. Value used is lower than actual mileage due to an assumption of efficiency losses resulting from deliveries involving less-than-full trucks.
11. Commuter miles calculated using CNN conversion factors for avg. miles/gallon and CO2 emissions/gallon of gasoline.
12. Sales leader car travel emissions calculated using number of bonus cars issued by Shaklee and CNN conversion factors for avg. miles/gallon and CO2 emissions/gallon of gasoline
13. Sales leader air travel emissions calculated using number of tickets issued to Sales Leaders and the CNN conversion factor for avg. air miles and CO2 tons/air mile.

VII. Appendices

Appendix 1

Comparison with GHG Protocol, Climate Leaders and California Registry Protocols

The Network's enterprise protocol has been designed to be consistent with the GHG Protocol. Differences between the various greenhouse gas protocols in part are based on differences in the purposes of each organization's program. Key differences in several of the major protocols are documented in the tables below. The four systems compared are: Climate Neutral (Enterprise Spreadsheet), EPA (Climate Leaders reporting form, June 2002), WRI (GHG Protocol's Corporate Inventory Module), and CA Registry CARROT tool. As of July 2002 the EPA is using the GHG Protocol and asking participants to use EIA data instead of IPCC factors.

Table 1: General Boundary and Data Issues

	Climate Neutral	GHG Protocol/ Climate Leaders (as of June 2002)	CA Registry
Reporting Year	Current Year	Choose base yr – adjust if significant structural changes	Choose baseline yr – adjust if structural & other changes result in > or < 10%
Transmission Losses			
<i>Natural Gas</i>	Maybe Required	Not included	Not included?
<i>Electricity</i>	Required and included at 8%	Not included	Included @ 8%
Organizational Boundaries	Management Control or Equity Share Boundaries go beyond where core to business & signification influence	Control or Equity Share	Mgmt Control (report 100%) and/or Equity Share If equity share < 20% report zero
Outsourcing	Included if necessary to maintain brand equity	Included as option in Scope 3, would be in Scope 1 if under operational control	Included in Scope 3 (which also includes franchises) – optional
Joint Ventures	Equity share or management control	Equity share or operational control	Equity share or mgmt control
Direct Emission Sources	Stationary Combustion Mobile combustion Process Fugitive CO ₂ Help: Refer to GHG Protocol Tools and CAR Protocols	Scope 1: Stationary Mobile Processing Fugitive	Stationary Combustion Mobile combustion Process Fugitive Help: Refers to GHG protocol, EPA Climate leader, UK DEFRA, IPCC, API and CA Registry tools

Indirect Emission Sources	Purchased Electricity Co-generated, purchased steam & purchased htg/cooling	Scope 2: Imports of electricity, heat, steam	Purchased electricity Co-generated heat & elect Purchase steam Purchased htg/cooling from district htg/cool
Optional Indirect Emission Sources	<i>Required:</i> Employee commuting & business travel Transport of products Waste <i>Additional Req. for Product Certification::</i> Production of imported materials Transport - products, materials, waste Product use Product disposal Waste emissions	Scope 3: Employee travel Production of imported materials Transport of products, materials, waste Product use Product disposal Waste emissions	Encourage reporting of any/all indirects Protocols in progress for: Offsite waste disposal Employee commuting Production of purchased raw materials Product use Product disposal Outsourced activities Business travel
Fuel Emission Factors	EIA data from 1605(b) assumes 100% oxidation, IPCC for international	IPCC for international and EIA for US	EIA data for electricity and other fuels Other approved – IPCC, UK DEFRA EIA & EPA for stationary
Materiality	Same as CA	All emission sources reported, omissions must be explained	Calculate all emissions, required to report 95%
Units for totals	Metric tons CO2e	Metric tons CO2e	Metric tons CO2e

Because the Network’s protocol is based on best available emission factors, most of the fuel based emission factors for US operations come from the EIA. The Network has been using the factors that are listed in the 1605(b) instructions, which assume 100% oxidation. In 2001 EPA staff indicated that they would also use EIA emission factors but instead of using the ones listed in 1605(b) they would use the factors used in the National Inventory which are based on a lower oxidation rate.

An international spreadsheet is available with IPCC fuel emission factors for non-US operations. GHG Protocol currently provides a mix of IPCC and EIA factors and the user has to select the specific factor for each fuel. The factors developed by EIA assuming complete oxidation and IPCC are very similar, and generally are within ten percent of one another. See Table for details.

Table 2: Comparison of Fuel Emission Factors

CA Registry	EIA	IPCC	EIA vs IPCC
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<i>Fuel</i>	<i>'Lbs CO₂ per Mbtu</i>	<i>'Lbs CO₂ per Mbtu</i>	<i>Comparable Fuels</i>	<i>'Lbs CO₂ per Mbtu</i>	<i>Absolute difference</i>	<i>% difference</i>
Distillate Fuel	159.66	161.386	Diesel Fuel	172.157	10.771	7
Jet Fuel*	154.48 or 159.7	156.258	Jet Kerosene	166.191	9.933	6
Residual Fuel	171.99	173.906	Residual Fuel	179.827	5.921	3
Natural Gas	116.37	117.08	Natural Gas	130.396	13.316	11
Propane		139.178	LPG	146.589	7.411	5
Wood and Wood Waste		221.943	Wood and Wood Waste	0.000	-221.943	-100
Municipal Solid Waste		199.854	Solid Waste Anthracite	185.793	-14.061	-7
Anthracite Coal		227.4	Coal	228.406	1.006	0

- CA distinguishes between kerosene and Naphta jet fuel.
- CA uses EIA data but adjusts CO₂ emissions factors for an estimated carbon dioxide oxidation fraction of 99% and used HHV.
- IPCC 1996 data is used by GHG Protocol – uses LHV.
- Climate Neutral Network uses EIA data.

Table 3: Comparison of Fuel and Process Requirements

	Climate Neutral	GHG Protocol /Climate Leaders	CA Registry
Electricity	State emission factors and IEA data for Annex 1 and 2 countries	IEA data for Annex 1 and 2 countries provided as defaults. References to more accurate country and regional values are also provided	EIA State annual average emission factors unless better data available
Onsite Fuels	EIA data from 1605(b) assumes 100% oxidation	IPCC and EIA	EIA data
Wood	Reported but doesn't get added to emission total	Reported separately from scopes as a memo item (consistent with IPCC approach)	Biomass combustion is reported as stationary combustion; working on specific factors for biomass fuel
Process Emissions	WRI worksheets	WRI worksheets	WRI, UK DEFRA, IPCC, EPA Climate Leader, guidance from CEC
Waste	Use EPA tons CO ₂ /ton waste material factors	Scope 3 - EPA landfill gas model	Optional

Table 4: Comparison of Mobile Emissions

	Climate Neutral	GHG Protocol/ Climate Leaders
Commuting	Required	Scope 3 – optional unless company owns vehicles
Company vehicles	Fuel use or distance based on 1605(b) factors	Fuel use or distance based on IPCC factors and DETR Use EPA 2001 fuel economy guide
Employee travel		
<i>Air</i>	Bureau of Transportation Statistic factor times 2	Scope 1 if owned and operated, otherwise Scope 3 use DETR factor
<i>Train</i>	Factor from “Creating a standard Corporate CO ₂ Indicator”	US DOT energy analysis for diesel, estimation for electric
<i>Rental cars</i>	Not included	Not included
Product transportation		
<i>Truck</i>	No good factor available	Multiplied rail factor by 3.6
<i>Air</i>	Factor from “Creating a standard Corporate CO ₂ Indicator”	DETR
<i>Rail</i>	Factor from “Creating a standard Corporate CO ₂ Indicator”	DETR for diesel train and estimated for electric
<i>Marine</i>	Factor from “Creating a standard Corporate CO ₂ Indicator”	DETR

Table 5: Comparison of Selected Mobile Emission Factors

	Climate Neutral	GHG Protocol	CA Registry
Gasoline	19.56 lbs CO ₂ /gal		19.36 lbs CO ₂ /gal

Table 6: Comparison of Air Travel Emission Factors

	Climate Neutral	GHG Protocol	CA Registry
kg CO₂e/passenger mile	0.57	0.29 Short	Not specified
		0.18 Long	
kg CO₂e/passenger km	0.35	0.18 Short	Not specified
		0.11 Long	
lbs CO₂e/passenger mile	1.28	0.64 Short	No guidance yet
		0.39 Long	

Note: Climate Neutral uses an air travel emission factor (0.64) multiplied by 2 to obtain the final factor of 1.28.

Table 6 References:

1. National Transportation Statistics 1999 from the US Bureau of Transportation Statistics (see <http://www.bts.gov/ntda/nts/NTS99/data/Chapter4/content.pdf> Table 4-21 on page 27)
2. “Environmental Reporting Guidelines for Company Reporting on Greenhouse Gas Emissions” by the UK Department of Environment, Food and Rural Affairs (see <http://www.defra.gov.uk/environment/envrp/gas/10.htm> Annex 6 Table 9).

3. IPCC's Aviation and the Global Atmosphere Report Page 8 in Executive Summary

Appendix 2

Average Electricity Emissions Factors by State and Region

Region/State	CO ₂ Emission Factors			CH ₄	N ₂ O
	lbs/kWh	short tons/MWh	metric tons/MWh	lbs/MWh	lbs/MWh
New England	0.98	0.491	0.446	0.0207	0.0146
Connecticut	0.94	0.471	0.427	0.0174	0.0120
Maine	0.85	0.426	0.386	0.0565	0.0270
Massachusetts	1.28	0.639	0.579	0.0174	0.0159
New Hampshire	0.68	0.341	0.310	0.0172	0.0141
Rhode Island	1.05	0.526	0.477	0.0068	0.0047
Vermont	0.03	0.014	0.013	0.0096	0.0039
Mid Atlantic	1.04	0.520	0.471	0.0093	0.0145
New Jersey	0.71	0.353	0.320	0.0077	0.0079
New York	0.86	0.429	0.389	0.0081	0.0089
Pennsylvania	1.26	0.632	0.574	0.0107	0.0203
East-North Central	1.63	0.815	0.740	0.0123	0.0257
Illinois	1.16	0.582	0.528	0.0082	0.0180
Indiana	2.08	1.038	0.942	0.0143	0.0323
Michigan	1.58	0.790	0.717	0.0146	0.0250
Ohio	1.80	0.900	0.817	0.0130	0.0288
Wisconsin	1.64	0.821	0.745	0.0138	0.0260
West-North Central	1.73	0.864	0.784	0.0127	0.0269
Iowa	1.88	0.941	0.854	0.0138	0.0298
Kansas	1.68	0.842	0.764	0.0112	0.0254
Minnesota	1.52	0.762	0.691	0.0157	0.0247
Missouri	1.84	0.920	0.835	0.0126	0.0288
Nebraska	1.40	0.700	0.635	0.0095	0.0219
North Dakota	2.24	1.121	1.017	0.0147	0.0339

South Dakota	0.80	0.399	0.362	0.0053	0.0121
South Atlantic	1.35	0.674	0.612	0.0127	0.0207
Delaware	1.83	0.915	0.830	0.0123	0.0227
Florida	1.39	0.697	0.632	0.0150	0.0180
Georgia	1.37	0.683	0.619	0.0129	0.0226
Maryland ^(*)	1.37	0.683	0.620	0.0118	0.0206
North Carolina	1.24	0.621	0.563	0.0105	0.0203
South Carolina	0.83	0.417	0.378	0.0091	0.0145
Virginia	1.16	0.582	0.528	0.0137	0.0192
West Virginia	1.98	0.988	0.897	0.0137	0.0316
East-South Central	1.49	0.746	0.677	0.0128	0.0240
Alabama	1.31	0.656	0.595	0.0137	0.0223
Kentucky	2.01	1.004	0.911	0.0140	0.0321
Mississippi	1.29	0.647	0.587	0.0132	0.0165
Tennessee	1.30	0.648	0.588	0.0105	0.0212
West-South Central	1.43	0.714	0.648	0.0087	0.0153
Arkansas	1.29	0.643	0.584	0.0125	0.0203
Louisiana	1.18	0.589	0.534	0.0094	0.0112
Oklahoma	1.72	0.861	0.781	0.0110	0.0223
Texas	1.46	0.732	0.664	0.0077	0.0146
Mountain	1.56	0.781	0.709	0.0108	0.0236
Arizona	1.05	0.525	0.476	0.0068	0.0154
Colorado	1.93	0.963	0.873	0.0127	0.0289
Idaho	0.03	0.014	0.013	0.0080	0.0033
Montana	1.43	0.717	0.650	0.0108	0.0227
Nevada	1.52	0.759	0.688	0.0090	0.0195
New Mexico	2.02	1.009	0.915	0.0131	0.0296
Utah	1.93	0.967	0.878	0.0134	0.0308
Wyoming	2.15	1.073	0.973	0.0147	0.0338
Pacific Contiguous	0.45	0.224	0.203	0.0053	0.0037
California	0.61	0.303	0.275	0.0067	0.0037
Oregon	0.28	0.141	0.127	0.0033	0.0034
Washington	0.25	0.123	0.111	0.0037	0.0040
Pacific Non-contiguous	1.56	0.780	0.707	0.0161	0.0149

Alaska	1.38	0.690	0.626	0.0068	0.0089
Hawaii	1.66	0.831	0.754	0.0214	0.0183
U.S. Average	1.34	0.668	0.606	0.0111	0.0192

* Includes the District of Columbia

Note: These state- and regional-level electricity emission factors represent average emissions per kWh or MWh generated by utility and nonutility electric generators for the 1998-2000 time period. The Voluntary Reporting of Greenhouse Gases Program believes these factors provide reasonably accurate default values for power generated in a given state or region (U.S. Census Division). However, reporters should use these state- and regional-level factors only if utility-specific or power pool-specific emission factors are not available.

Source: Energy Information Administration, *Updated State-level Greenhouse Gas Emission Factors for Electricity Generation 1998-2002* (April 2002) see: <http://eia.doe.gov/oiaf/1605/techassist.html>

Appendix 3

Fuel and Energy Emissions Factors

Fuel	Code	Emissions Coefficients		
		Pounds CO ₂ per Unit Volume or Mass		Pounds CO ₂ per Million Btu
Petroleum Products				
Aviation Gasoline	AV	18.355	per gallon	152.717
		770.916	per barrel	
Distillate Fuel (No. 1, No. 2, No. 4 Fuel Oil and Diesel)	DF	22.384	per gallon	161.386
		940.109	per barrel	
Jet Fuel	JF	21.095	per gallon	156.258
		885.98	per barrel	
Kerosene	KS	21.537	per gallon	159.535
		904.565	per barrel	
Liquified Petroleum Gases (LPG)	LG	12.805	per gallon	139.039
		537.804	per barrel	
Motor Gasoline	MG	19.564	per gallon	156.425
		822.944	per barrel	
Petroleum Coke	PC	32.397	per gallon	225.130
		1356.461	per barrel	
		6768.667	per short ton	
Residual Fuel (No. 5 and No. 6 Fuel Oil)	RF	26.033	per gallon	173.906
		1,093.384	per barrel	
Natural Gas and Other Gaseous Fuels				
Methane	ME	116.376	per 1000 ft ³	115.258
Landfill Gas	LF	¹	per 1000 ft ³	115.258
Flare Gas	FG	133.759	per 1000 ft ³	120.721
Natural Gas (Pipeline)	NG	120.593	per 1000 ft ³	117.080
Propane	PR	12.669	per gallon	139.178
		532.085	per barrel	
Coal	CL			
Anthracite	AC	3852.16	per short ton	227.400
Bituminous	BC	4931.30	per short ton	205.300
Subbituminous	SB	3715.90	per short ton	212.700
Lignite	LC	2791.60	per short ton	215.400

Renewable Sources				
Biomass	BM	Varies depending on the composition of the biomass		
Geothermal Energy	GE	0		0
Wind	WN	0		0
Photovoltaic and Solar Thermal	PV	0		0
Hydropower	HY	0		0
Tires/Tire-Derived Fuel	TF	6160	short tons	189.538
Wood and Wood Waste ²	WW	3814	per short ton	221.943
Municipal Solid Waste ²	MS	1999	per short ton	199.854
Nuclear	NU	0		0

1 For a landfill gas coefficient per thousand standard cubic foot, multiply the methane factor by the share of the landfill gas that is methane.

2 These biofuels contain "biogenic" carbon. Under international greenhouse gas accounting methods developed by the Intergovernmental Panel on Climate Change, biogenic carbon is part of the natural carbon balance and it will not add to atmospheric concentrations of carbon dioxide.³ Reporters may wish to use an emission factor of zero for wood, wood waste, and other biomass fuels in which the carbon is entirely biogenic. Municipal solid waste, however, normally contains inorganic materials principally plastics that contain carbon that is not biogenic. The proportion of plastics in municipal solid waste varies considerably depending on climate, season, socio-economic factors, and waste management practices. As a result, EIA does not estimate a non-biogenic carbon dioxide emission factor for municipal solid waste. The U.S. Environmental Protection Agency estimates that, in 1997, municipal solid waste in the United States contained 15.93 percent plastics and the carbon dioxide emission factor for these materials was 5,771 lbs per ton.⁴ Using this information, a proxy for a national average non-biogenic emission factor of 919 lbs carbon dioxide per short ton of municipal solid waste can be derived. This represents 91.9 lbs carbon dioxide per million Btu, assuming the average energy content of municipal solid waste is 5,000 Btu/lb.

3 Intergovernmental Panel on Climate Change. *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3, Pg. 6.28, (Paris France 1997).

4 U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-1998*, EPA 236-R-00-001, Washington, DC, April 2000.

Source: Energy Information Administration, *Fuel and Energy Source Codes and Emissions Coefficients* (April 2002) see:

<http://www.eia.doe.gov/oiaf/1605/factors.html>

Appendix 4

Special Considerations Regarding Air Travel Emission Factors

The emission factor used by the Climate Neutral Network to calculate the global warming impact from air travel is 0.57 kg CO₂e for each mile traveled by one passenger. This factor is based on data from the US Bureau of Transportation Statistics (BTS)²¹ and the Intergovernmental Panel on Climate Change (IPCC). The BTS compiles data from all US air carriers' domestic and international flights each year. Based on their data CO₂ emissions for both domestic and international flights is 0.29 kg/passenger mile. Climate Neutral Network adjusts this carbon emissions factor (multiplying it by 2) to account for the non- CO₂ emissions that result from air travel. This multiplier is based on an IPCC report²² that indicates that non- CO₂ impacts could be as much as 2 to 4 times the effect of the carbon dioxide alone thus arriving at the final 0.57 kg CO₂ equivalent per passenger mile²³. While there is still uncertainty as to the specific rate of those emissions, the IPCC report shows that the impact is greater than zero.

The factor used by the Climate Neutral Network is conservative, yet higher than the factor used by the GHG Protocol, for a number of reasons. The factor that is used in the GHG Protocol is based on data from the UK Department for Environment, Food and Rural Affairs (DEFRA)²⁴ representing British Airways short and long haul flights. DEFRA has two different factors, 0.29 kg/passenger mile for short haul flights and 0.18 kg/passenger mile for long haul flights. While the DEFRA short haul and BTS domestic numbers are similar, the divergence in ultimate emissions estimates compared to Climate Neutral's occurs because the DEFRA emissions factor for the long haul flights is so much lower and thus overall they are using a lower factor for the carbon dioxide emissions per passenger mile. Most importantly though was the Network's decision to multiply the carbon dioxide factor by two to include the full spectrum of greenhouse gases in addition to carbon dioxide, which the GHG Protocol does not currently do. Other minor differences arise because the GHG Protocol (based on DEFRA emissions data) uses different factors according to the length of a flight and interpolates emission rates for intermediate length flights.

²¹ National Transportation Statistics 1999 from the US Bureau of Transportation Statistics (see <http://www.bts.gov/ntda/nts/NTS99/data/Chapter4/content.pdf> Table 4-21 on page 27):

“Energy Intensity of Certified Air Carriers, All Services”.

²² IPCC's Aviation and the Global Atmosphere Report Page 8 in Executive Summary

²³ The “times two” factor is derived from the IPCC Aviation and the Global Atmosphere Report. On page 8 of the report's Executive Summary they state: "Over the period from 1992 to 2050, the overall radiative forcing by aircraft (excluding that from changes in the cirrus clouds) for all scenarios in this report is a factor of 2 to 4 larger than the forcing by aircraft carbon dioxide alone." An additional 8 percent will be added in the case of certifying air travel itself to account for upstream emissions in the airline industry.

²⁴ “Environmental Reporting Guidelines for Company Reporting on Greenhouse Gas Emissions” by the UK Department of Environment, Food and Rural Affairs (see <http://www.defra.gov.uk/environment/envrpgas/10.htm> Annex 6 Table 9).

A comparison of the factors used in the GHG protocol and the Climate Neutral Network Protocol are shown in the following table:

Comparison of Air Travel Emission Factor Using Different Units of Measure

	Climate Neutral	GHG Protocol
kg CO2e/passenger mile	0.57	0.29 Short
		0.18 Long
kg CO2e/passenger km	0.35	0.18 Short
		0.11 Long
lbs CO2e/passenger mile	1.28	0.64 Short
		0.39 Long

Appendix 5 – Climate Neutral Network Metrics Spreadsheet

Found at <http://www.climateneutral.com/pages/metrics.html>

APPENDIX 6: GUIDE TO PREPARING A CLIMATE COOL™ ENTERPRISE CERTIFICATION APPLICATION



The following is provided to you as a guide to assist you in preparing your application for Climate Cool™ certification. Please address each of the following topics in the order they are listed here. If you have additional information that you want to share with the Review Group, you may add it as an appendix.

1. Executive Summary

2. Description of Organization

3. Internal Reductions

- a. List things that your organization has done to reduce your own energy consumption and that demonstrate your commitment to reducing your climate change impact.
- b. Describe your organization's greenhouse gas management plan.

4. Emission Inventory

The Network has available an Excel Worksheet to help you calculate this.

a. Boundaries

- b. *What elements have you included in your greenhouse gas footprint?*

c. Data Sources

Were you able to get actual consumption figures such as kWh, gallons of gas, etc? Explain any assumptions that you had to make.

d. Greenhouse Gas Emissions

Present a table summarizing the emissions for each of the following categories:

- i. *Indirect Energy (purchased electricity)*
 - i. *Stationary Combustion*
 - ii. *Mobile Combustion*
 - iii. *Process Emissions*
 - iv. *Fugitive Emission*
 - v. *Other Indirect Emissions (including outsourced or contracted activities you significantly influence, waste disposal, employee commuting, business travel, product transport)*

Attach your calculations as an appendix. If you have calculated your emission inventory using the California Climate Registry's CARROT tool, the above information may be entered into the CARROT and a printout of the CARROT report attached.

5. Offsets

a. Pre-Certified Offset Project Description

Confirm that the offset is on Climate Neutral's list of "pre-certified" offsets and identify the offset and quantity purchased. Next, Establish contract enforcement and liability mechanisms (e.g. trusts, guarantees etc). Explain how the credits will be secured. Who owns the reductions? What kind of guarantee of performance is provided? How will under-performance of projects be compensated?

b. Standard Offsets (offsets with Climate Neutral Network approved emission estimation guidelines)

Provide a description of the project and how it will reduce greenhouse gas emissions. Complete items ii.through vi.below.

c. New Offsets

Offsets that do not fit into a. or b. categories above must be submitted for review to Climate Neutral Network's Environmental Advisory Board. The Advisory Board reviews "new offsets" twice per year generally in the fall and spring. When submitting a "new offset" for review, provide a description of the offset project and how it will reduce greenhouse gas emissions. Then provide an explanation to each of the following issues.

i.Adherence to Design Principles

Provide details on the assumptions and discount rates used to calculate the carbon dioxide equivalents estimated once the new technology is in place.

ii.Transparent and verifiable

Explain whether or not the reductions are readily verified and the data is transparent. Can project data be shared with the public?

iii.Additional

Demonstrate that these reductions are additional. Is the project required by law? What are the barriers that the offset investment helps to overcome? Is the project already happening? Will it go forward without the carbon investment?

iv.Measure, monitor, & verify reductions

How will the reductions be measured, monitored and verified? Will there be any third party verification? Does the reporting or verifying agency have a conflict of interest in reporting?

v.Minimize and compensate for potential leakage

Does the project simply relocate positive or negative activities from one location to another? Is there a real reduction in emissions when you look at outside effects?

vi.Establish contract enforcement and liability mechanisms (e.g. trusts, guarantees etc)

Explain how the credits will be secured. Who owns the reductions? What kind of guarantee of performance is provided? How will under-performance of projects be compensated?

vii. Technically sound

Is this a new technology? How well established is it? Are there any uncertainties the technology or this particular application?

6. Net Greenhouse Gases

Provide a table with your greenhouse gas emissions inventory and the reductions that will come from the proposed offset projects. If you have calculated your emission inventory using the California Climate Registry's CARROT tool, print out a summary table from the CARROT and provide access authorization to Climate Neutral Network.

Appendix 7: Overview of the Certification Process



Overview of the Certification Process

Draft for Discussion 7/3/03

1. **Applicant notifies Climate Neutral Network (Network)** of intent to apply. The Network provides Client a list of approved certifiers (who are also California State/Registry approved certifiers).
2. **Applicant selects Certifier:** Applicant contacts one or more certifier to discuss and obtain bids for certification activities. Applicant selects one to certify its Climate Cool™ Enterprise application and, if applicable, its GHG emissions results for the California Registry. Applicant negotiates contract terms.
3. **Applicant submits application:** Applicant submits Climate Cool™ enterprise application to the selected certifier and to Climate Neutral Network.
4. **Certifier Submits Case-Specific Evaluation of Conflict of Interest (COI) Form:** after a participant chooses a certifier, the Certifier must submit a Conflict of Interest Evaluation Form to the Network to establish that the likelihood of a COI between parties is low or that risk of any conflict can be sufficiently mitigated by the certifier.
5. **Certifier and Participant Finalize Contract:** When the Network provides a favorable COI determination between an applicant and Certifier, certifiers may finalize their contract with an applicant. If the applicant is also registering with the California Climate Action Registry (Registry), the applicant should wait for a favorable determination between the applicant and Certifier from both the Registry and the Network.
6. **Certifier Submits Certification Notification Form to the Network (and CEC/Registry as applicable).**
7. **Certifier Conducts Certification Activities:** Certifier follows the guidance in the Registry Certification Protocol and the supplemental Climate Neutral Certification Protocol. If non-precertified offsets are included in the applicant's portfolio, Certifier must submit those offsets to the Network for Environmental Advisory Board Review prior to finalizing certification.
8. **Certifier Prepares Certification Report and Certification Opinion for Participant:** Certifier prepares a detailed summary (Certification Report) of the certification activities for the participant. Certifier also prepares a Certification Opinion for participant's review, prior to sending the opinion to the Network.
9. **Certifier and Participant Discuss Certification Report and Opinion:** certifier meets with participant to discuss certification Report and Opinion.

10. **Certifier Completes Certification Form:** Once authorized by the participant, Certifier completes the Certification Form and mails the original to the Network. The Certifier also mails or e-mails the final application to the Network.
11. **Eighteen Month Review (True-up):** If certifier did not conduct the original certification, repeat steps 1 – 9. If certifier has a multiyear contract or otherwise did conduct the original certification for the participant, the certifier may:
 - Submit a statement certifying that the original COI form is still valid (they have no COI with the participant)
 - Submit a new COI form (in the event the firm has had questionable dealings with the participant since the original certification)Then the certifier should repeat steps 4-9.
12. **Subsequent Certifications.** If the participant wants to obtain a Climate Cool™ certification for another year and has contracted with the same certifier, follow guideline in step 10.

Appendix 8: Getting from CARROT to Climate Neutral

Pending

Glossary

Direct emissions are emissions from sources that are owned or controlled by the applicant, e.g. emissions from production of heat, electricity or steam on site, emissions from manufacturing processes, fugitive emissions from equipment joints or gas transport, and emissions from company-owned vehicles.

Indirect emissions are emissions that are a consequence of the applicant's activities that occur from sources owned or controlled by another company. The most common type of indirect emissions are emissions from the purchase of electricity. Indirect emissions also include emissions from such activities as employee airline travel for business, emissions from waste generated by the applicant (such as methane emissions in landfills), and emissions occurring during the use phase of a product. Source: GHG Protocol

Sustainably Managed - Biomass

(A) organic material from a plant that is planted for the purpose of being used to produce energy, but not including vegetation produced on Conservation Reserve Program lands if such harvest would be inconsistent with the environmental purposes of the conservation program; and

(B) nonhazardous, lignocellulosic or hemicellulosic matter or agricultural animal waste material that is segregated from other waste materials and is derived from—

(i) the following forest-related resources—

- (a) harvesting residue;
- (b) precommercial thinnings;
- (c) slash; and
- (d) brush;

(ii) an agricultural crop, crop byproduct or residue resource;

but not including vegetation produced on Conservation Reserve Program lands if such harvest would be inconsistent with the environmental purposes of the conservation program;

(iii) miscellaneous waste such as landscape or right-of-way- tree trimmings; but not including—

- (a) incineration of municipal solid waste;
- (b) recyclable postconsumer waste paper;
- (c) painted, treated, or pressurized wood;
- (d) wood contaminated with plastic or metals; or
- (e) tires; and

(iv) animal waste provided that the waste comes from animal feeding operations with no more than 1,000 animal units.