Curbing Your Climate Impact

A Resource Guide for Employers

seattle climate partnership

June 2007

This Resource Guide was made possible through the valuable contributions of the following:

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INTRODUCTION

Climate change is a significant business issue – not only in terms of corporate social responsibility – but as a key business risk and opportunity. Operating costs, regulatory uncertainty, shareholder resolutions and consumer expectations are some of the many factors motivating companies to directly confront the climate challenge. Media coverage of the business impacts – including recent stories in Harvard Business Review (March 2007) and Sports Illustrated (March 12, 2007) – are quickly expanding the climate change dialogue within the business community.

Climate change brings with it opportunities. Climate-friendly practices can result in significant cost-savings through increased efficiency and process improvements. New markets for low-carbon products and services may lead to increased market share and profits. At the same time, climate change brings greater uncertainty as insurance and financing companies consider their risks. Speculations about carbon regulations have led a number of companies to lobby for national carbon legislation. The United States Climate Action Partnership (USCAP) unites leading business and environmental organizations in a call for strong federal legislation to require reductions of greenhouse gas emissions. Members include Alcoa, BP America, PG&E, DuPont, Caterpillar, General Electric and Duke Energy.

Wal-Mart has also joined the call for national carbon caps and is taking significant steps to mitigate its risk. The company will be investing $500 million annually in technologies and innovation to reduce greenhouse gases (GHG) by 20 percent over the next seven years. These reductions also make good business sense. CEO H. Lee Scott explains, "We are taking costs out and finding we are doing things we just do not need to do, whether it be in packaging, or energy usage, or the kind of equipment we buy for refrigeration in our stores, that there are a number of decisions we can make that are great for sustainability and great for bottom-line profit."

In the Seattle area, an expanding network of businesses and organizations are committed to helping the Seattle community reduce emissions and thrive economically. With over 40 members, the Seattle Climate Partnership offers assistance and benefits to help employers reduce emissions, improve efficiencies, and successfully compete in a changing environment. Employers are in a unique and powerful position to reduce GHG emissions – not only from their own operations, but also from their suppliers, customers, and employees.

This guide is designed to help employers reduce emissions and improve their bottom line. The guide provides:

- Information about climate change and impacts in the Pacific Northwest
- An overview of the business benefits of climate-friendly practices
- Steps to documenting and reducing GHG emissions
- Links to tools and resources
- Examples of the ways that local employers are responding to climate change

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Seattle Climate Partnership Founding Partners

- City of Seattle
- Starbucks
- REI
- Port of Seattle
- LaFarge NA
- University of Washington
- Group Health Cooperative
- King County
- Mithun
- Shoreline Community College
- Garvey Schubert Barer
- Urban Visions

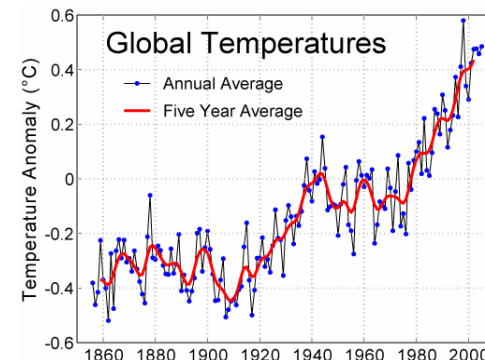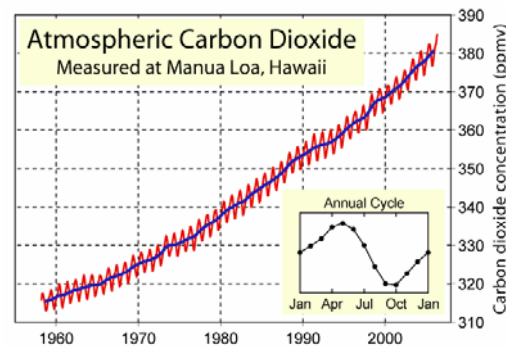*To learn about member benefits, call 206-615-0829 or visit http://www.seattle.gov/climate/partnership.htm*

What is Climate Change?

Climate change, as the term is currently used, refers to the rise in global temperature due to the accumulation of **GHGs** in the earth's atmosphere as a result of human activities. The most widespread GHG is CO_2 which makes up 77 percent of the global GHG emissions and approximately 84 percent of US emissions (Malhi and Grace, 2000). GHGs act as a blanket in the earth's atmosphere by trapping heat as it is reflected from the earth surface. The resulting rise in average surface temperature – or global warming – can cause significant environmental, social, and economic effects such as fluctuations in weather patterns, ecosystem and habitat disruption, glacial melting, rising sea levels, decreasing snowpack and water supply, or the spread of infectious diseases (Putt del Pino et al., 2006).

While GHGs have always been present in the earth's atmosphere, their levels have increased dramatically over the last century as a result of human activities such as the burning of fossil fuels, deforestation, land clearing, and agriculture (Bauer et al., 2003). Models referenced by the **Intergovernmental Panel on Climate Change (IPCC)** predict that global temperatures may increase by 2.5 to 10.5 °F between 1990 and 2100.

The **six main GHGs**:

1) Carbon dioxide (CO_2)
2) Methane (CH_4)
3) Nitrous oxide (N_2O)
4) Hydrofluorocarbons (HFCs)
5) Perfluorocarbons (PFCs)
6) Sulphur hexafluoride (SF_6)

IPCC's fourth climate change report **Climate Change 2007** concludes that there is "unequivocal" evidence for human-caused climate disruption, including 'global air and ocean temperature increases, widespread melting of snow and ice, and rising global average sea level.' The report was produced by 600 authors from 40 countries with over 600 expert reviewers www.ipcc.ch

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Source: Robert A. Rohde, Global Warming Art, National Oceanic and Atmospheric Administration.
http://www.globalwarmingart.com/wiki/Image:Mauna_Loa_Carbon_Dioxide_png
http://upload.wikimedia.org/wikipedia/en/f/f4/Instrumental_Temperature_Record.png

What does climate change mean to the Pacific Northwest?

Scientists expect the Pacific Northwest climate to warm between 0.2 and 1°F every ten years over the next several decades. Even the lowest estimated warming would change the Northwest's climate significantly more than the warming that has occurred during the 20th century. The 2006 study *Impacts of Climate Change on Washington's Economy* provides an assessment of how rising temperatures will affect Washington's $269 billion economy. The study concluded that climate change impacts are already visible in Washington State:

- **Mountain glaciers** in the North Cascades have lost a significant percent of their total volume since 1983 and most are considered at risk of disappearance.
- **Mountain snow packs** have already been reduced at the majority of sites studied.
- **Peak stream flows** are shifting earlier in the year in watersheds covering much of the state.
- The number of **large wildfires** in Washington State has increased from an average of 6 per year in the 1970s to 21 per year.
- The South Puget Sound shoreline is likely to experience from 1 to 5 inches of **sea level rise** per decade.
- Changes in temperature and precipitation that alter the snow pack, stream flow and water quality in the Columbia River Basin will have a **variety of impacts on aquatic and terrestrial habitats**, including changes in ranges and increased fragmentation.

The *Impacts of Climate Change on Washington's Economy* study also indicated that these impacts will affect forest resources, municipal water supplies, and other economic activities. For example:

- Costs of fighting and managing wildfires may be 50 percent higher, exceeding $75 million per year by the 2020s. Lost sales and revenues from timber, and recreational and tourism activities could be many times higher.
- Elevated public health costs to address the spread of infectious disease and increasing incidence of respiratory illness. Washington's asthma rate is among the highest in the nation with medical costs already at more than $400 billion dollars annually.
- Declining snowpacks and rising summer temperatures will affect the supply and demand for irrigation and impose new costs on agricultural communities. Streamflow shifts will affect the management and costs of municipal water supplies. Costs to offset water shortages through conservation could exceed $8 million per year by the 2020s.
- Farmers will have longer growing seasons, reduced water supplies and changes in pests, weeds and crop diseases. Crop loss in the Yakima basin could reach $79 million by mid-century and warmer temperatures will impact Washington wineries and vineyards.
- Sea level rise projections could impact coastal property, infrastructure and shoreline protection such as Seattle's Alaskan Way seawall.

"This is a global issue and we're already connected to trading partners who are facing climate change issues along with us. If we're flexible and responsive, we can seize opportunities to help reduce climate change effects and benefit our region economically."

-- Juli Wilkerson, Director, WA Dept. of Community, Trade and Economic Development

At the same time, efforts to reduce GHGs and prepare for climate change offer opportunities to grow income and jobs in the region and state. Energy efficiency measures can help retain local dollars that may be otherwise lost on imported fuels and energy. Clean energy technologies and renewable power offer opportunities to develop low-carbon products and services. Early action and climate change policy can better position the region for a period of unprecedented change (Washington Economic Steering Committee and the Climate Leadership Initiative, 2006).

Resources for Information

Impacts of Climate Change on Washington's Economy examines the economic effects of climate change in Washington State: *http://www.ecy.wa.gov/pubs/0701010.pdf*

The *Climate Impacts Group of the University of Washington* is an interdisciplinary group that studies the impacts of natural climate variability and global climate change on the Pacific Northwest: *http://www.cses.washington.edu/cig*

Climate Impacts on Columbia River Basin Fish & Wildlife reviews how climate change may impact the Columbia River Basin: *www.nwcouncil.org/library/isab/isab2007-2.htm*

Climate Change Building Blocks reviews impacts of population increase and climate change on water resources and water management in the Pacific Northwest: *http://www.tag.washington.edu/projects/ClimateBuildingBlocks_Final_Oct5.pdf*

The *Union of Concerned Scientists* offers an overview on climate change: *http://www.ucsusa.org/global_warming/science/global-warming-faq.html*

The *National Resources Defense Council* presents a summary of the most significant findings about climate change: *http://nrdc.org/globalWarming/fgwscience.asp*

THE BUSINESS CASE

The first and most important response to climate change is to improve efficiency, which thereby reduces costs. There are tangible and intangible benefits that businesses and organizations are already experiencing from climate-friendly practices.

- **Cost savings from improved energy management and efficiency.** The population of the Puget Sound region was estimated at just over 3.5 million in 2006 and is expected to increase to 5 million by 2040. Additional demand for energy will to drive up energy costs as additional capacity and energy imports will be required (PSRC, 2006).

- **Enhanced brand value**. Climate protection is good public relations, especially as consumers demand climate-friendly products and services. Effectively communicating climate change action is becoming a key marketing tool.

- **Increased revenues and markets.** New markets for low-carbon products and services are expanding. Certain organizations will benefit by aligning their products and services to satisfy consumer and investor concerns about climate change.

- **Reduced uncertainty and risk**. Energy efficiency and renewable energy hedge financial risks from rising prices of fossil fuels. By reducing carbon use, companies can prepare for a future that will likely include carbon regulations.

- **Improved shareholder and board member relations.** Investors and board members are becoming keenly aware of climate change. Implementing business strategies to mitigate risk, improve efficiencies, and align with consumer demand may translate into improved shareholder relations.

- **Employee-related benefits.** Employee recruitment and retention are fundamental to a thriving organization. As employees appreciate working where company values align with their own, employers will increasingly have to respond to employee interests in climate-friendly business practices (Cohen & Prusak, 2001).

➡ *Resources for Action*

ClimateBiz.com offers information about the economic benefits of reducing GHG emissions:
http://www.climatebiz.com/sections/backgrounder_detail.cfm?UseKeyword=Business%20Case

A **Pew Center on Global Climate Change** report presents corporate strategies that take into account climate-related risks and opportunities: *http://www.pewclimate.org/global-warming-in-depth/all_reports/corporate_strategies/index.cfm*

The Climate Group is nonprofit dedicated to advancing business and government leadership on climate change:
http://www.theclimategroup.org

Business for Social Responsibility issued a 2006 report which outlines the business case for corporate climate strategy:
http://www.bsr.org/meta/BSR_Climate-Change-Report.pdf

UNDERSTAND & REDUCE YOUR IMPACT

"Climate change is one of the most significant challenges of our time, and the scientific consensus is that most of the observed global warming in temperatures over the last 50 years is likely to have been due to the human-induced increase in greenhouse gas concentrations… Recognizing that leadership is fundamental to ensure a legacy for the future and to protect the healthy and safe learning and working environments valued by the UW, we look forward to working with the founding partners of the Seattle Climate Partnership, including the City of Seattle, to promote the community-wide goal of reducing greenhouse gas emissions by 7% below 1990 levels by 2012."
-- Mark A. Emmert, PhD, President, University of Washington

"Starbucks believes that meaningful action must be taken to reduce greenhouse gas emissions. We are pursuing three main elements to mitigate our own emissions: purchasing renewable energy certificates to offset 20 percent of the energy used in our US and Canada operated stores, focusing on energy conservation activities at all our stores, and advocating the need for collaborative action on climate change. In the spirit of collaboration, we are excited to work with the City and other founding partners to develop the Seattle Climate Partnership Agreement."
-- Ben Packard, Director of Environmental Affairs, Starbucks

You might be surprised to learn that GHG emissions are produced at almost every stage of the operations of your business or organization. Everything from the raw materials and supplies used, the power consumed, travel and waste generated all contribute in varying degrees to GHG emissions. Reducing GHG emissions doesn't have to be complicated or time consuming. The key is to understand your organization's impacts and then to take steps to reduce these impacts over time.

The **EPA Climate Leaders** program has 117 Partners representing a wide range of sectors and business size. This industry-government partnership works with companies to develop long-term comprehensive climate change strategies. http://www.epa.gov/climateleaders/.

Resources for Action

World Resources Institute offers a variety of tools and resources to help organizations understand and reduce climate change impacts: *http://www.wri.org/climate/*

The Clean Air-Cool Planet on-line Campus Climate Action Toolkit (CCAT) gives students, faculty, administrators, alumni, trustees, or community members a comprehensive guide for making educational institutions climate friendly: *http://www.cleanair-coolplanet.org/toolkit*

Understand Your Impact: Your Carbon Footprint

Developing a GHG inventory (or carbon footprint) is the best way to identify and document carbon emissions. A GHG inventory involves taking stock of all the emissions the organization is responsible for – those that are directly produced (e.g. travel in a company-owned vehicle) and those that are indirectly produced (e.g. employee commute travel). Through careful examination of the operations of your organization, a carbon inventory can help you to identify the most significant GHG contributions, plan and implement reduction strategies, and report results.

The basic steps to calculate a carbon footprint are outlined below. The approach is based on the **GHG Protocol**, which is the most widely accepted standard for calculating GHG emissions. The following steps are intended to be a general guide; for more detailed information, please refer to World Resource Institute's *Hot Climate, Cool Commerce: A Service-Sector Guide to Greenhouse Gas Management* http://pdf.wri.org/hotclimatecoolcommerce.pdf.

Step 1: Secure the appropriate organizational support for the effort. Depending on how extensive an inventory you plan to pursue, organizational staffing support could be one staff member or a team. Regardless of the size, it is always best to secure senior management support.

Step 2: Identify your goals and intended audience. There are a variety of reasons for an organization to reduce emissions: to demonstrate environmental commitment, to mitigate future risk, to take advantage of branding opportunities, to satisfy employees, to save money. It is helpful to articulate your goals at the start. These factors will influence the activities you include in your inventory as well as subsequent emission reduction actions.

Step 3: Determine the organizational boundaries of the footprint. You will want to identify which of your organization's business units to include in the calculation (e.g. subsidiaries, joint venture, partnerships). There are three approaches that can be used:
1. **Operational Control** – the operations included are those for which your organization has operational control and the percentage of emissions reported are 100 percent
2. **Financial Control** – the operations included are those for which your organization has financial control and the percentage of emissions reported are 100 percent
3. **Equity Share** – the operations included and the percentage of emissions reported are equivalent to your organization's equity share in the operation

Step 4: Determine the operational boundaries of your footprint. Emissions result from a wide range of activities such as heating and cooling, traveling, or shipping products to consumers. You will need to determine the specific organizational activities to include in your footprint. The GHG Protocol classifies emission activities by three different scopes. The scope concept is primarily important for accounting and reporting

The **GHG Protocol** serves as the premier source of knowledge about corporate GHG accounting and reporting. Convened in 1998 by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), the GHG Protocol was developed in partnership with some 350 individuals from corporations, non-profit organizations, and governments.
http://www.ghgprotocol.org/

procedures, but is useful to keep in mind as you determine what to include in your carbon inventory. *Note that the Scopes 1 and 2 are required for inclusion under the framework of the GHG Protocol.*

- **Scope 1 (direct emissions)**: Emissions that are generated on-site from sources owned or controlled by your organization. Examples include emissions from a company-owned vehicle or from natural gas combustion on-site.
- **Scope 2 (indirect emissions)**: Emissions that result from the use of electricity, steam or heat purchased by your organization.
- **Scope 3 (indirect emissions)**: Emissions that result from your organization's activities but are generated by sources owned or controlled by another entity. Examples include employee commuting in private or public vehicles, outsourced shipping, or consumables like paper. For many organizations, these activities offer the greatest emission reduction opportunities.

TIP FOR ACTION

If you plan to participate in a climate protection program such as EPA's Climate Leaders Program www.epa.gov/stateply/ or the World Wildlife Fund Climate Savers Program, www.worldwildlife.org/climate/projects/climateSavers.cfm check with their program requirements prior to conducting your inventory as a specific protocol may be required.

Step 5: Collect activity data. Activity data quantify an activity, such as business trips, in units that will help you calculate the emissions generated. Each activity is measured by a specific unit such as gallons of fuel or therms of natural gas. For most organizations, the activities you will want to consider in a carbon inventory include:

1. **Transportation**
   - Transport of goods and services
   - Business-related travel (car, train, airplane)
   - Employee commute trips

2. **Energy**
   - Purchased electricity, steam, or heat
   - Energy generated on-site

3. **Materials & Products**
   - Paper use
   - Packaging and other energy-intensive materials used

4. **Waste**
   - Materials disposed/recycled/composted annually

The first time you develop your inventory, you will need to collect activity data for a base year – the reference year against which emissions performance is measured over time. Data availability can impact the year you choose. Activity data are collected by examining utility bills, receipts, and travel logs.

If you decide to measure employee commuting, you may need to survey staff to document the various transportation modes used by your employees. The Seattle Climate Partnership has developed a web survey to help its partners estimate emissions from employee commuting www.seattle.gov/climate/SCPresources.htm. However, if your organization exceeds 100 employees, it is already required to gather data on employee commuting as part of Washington's Commute Trip Reduction Law (http://www.seattle.gov/transportation/commute.htm).

Step 6: Apply emission factors to estimate your emissions. Emission factors are used to calculate the quantity of GHGs resulting from each activity. Emission factors convert energy use into the amount of carbon emissions produced based on an *emissions per unit of energy or fuel used* ratio. While there are six main GHGs, emissions factors typically convert activities into CO_2 equivalents. Emissions factors are published by a variety of government agencies and organizations, and apply to specific types of energy sources. For each activity area, you will collect activity data and then apply an emission factor to convert that data into an emission value.

Activity Data		**Emission Factor**		**GHG Emissions**
Activities of the organization that directly or indirectly emit GHGs	**x**	Source-specific factor that converts activity data into an emission value	**=**	Contribution to GHG emissions by the organization
10,000 gallons of fuel used annually for auto travel		*10,000 gallons of fuel X 8.87 $kgCO_2$ / gallon*		*88,700 $kgCO_2$ / 1000 kg/metric ton = 88.7 metric tons of CO_2*

There are a number of tools available to calculate emissions from organizational and business activities. The Seattle Climate Partnership has developed a **Carbon Inventory Calculator** to enable organizations to calculate and benchmark existing emissions, identify areas of greatest concern, and prioritize reduction strategies through scenario planning. If your organization has more complex operations, you may need to supplement with other tools and industry-specific information.

Resources for Action

Seattle Climate Partnership **Carbon Inventory Calculator** and employee commute survey
www.seattle.gov/climate/SCPresources.htm

WRI and **WBCSD** offer a comprehensive set of "best practice" tools to calculate emissions:
http://www.ghgprotocol.org/templates/GHG5/layout.asp?type=p&MenuId=OTAx

ClimateBiz provides information and tools on calculating emissions:
http://www.climatebiz.com/sections/backgrounder_detail2.cfm?LinkAdvID=42095&UseKeyword=Measuring%2C%20Reporting%20%26%20Verification and http://www.climatebiz.com/sections/toolsresources_detail.cfm?LinkAdvID=38985

The **US Climate Technology Cooperation** offers an online tool to help conceptualize greenhouse gas emission figures (e.g. translating metric tons of carbon into passenger vehicles not driven): http://www.usctcgateway.net/tool

US EPA's Waste Reduction Model (WARM) calculates and totals GHG emissions of baseline and alternative waste management practices including source reduction, recycling, combustion, composting, and landfilling:
http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteWARM.html

US EPA's Recycled Content (ReCon) Tool helps estimate life-cycle GHG emissions and energy impacts from purchasing and/or manufacturing materials with varying degrees of post-consumer recycled content:
http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsRecon.html

The **Paper Calculator** was developed by Environmental Defense's Paper Task Force: http://www.papercalculator.org.

Emissions Estimates *(numerical)*

	CO_2 (Metric Tons)
Business Travel - Car	16.2
Business Travel - Plane	13.9
Business Travel - Other	0.4
Employee Commuting	20.1
Energy - Natural Gas	0.0
Energy - Electricity	0.3
Energy - Steam	0.0
Materials Purchased	2.3
Waste Generation	4.8
Total	**53.2**

Relative Emissions Contributions
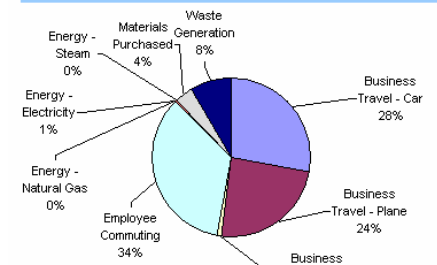
Example results from using the Seattle Climate Partnership Carbon Inventory Calculator

Examples of GHG Inventory Reports
- International Finance Corporation World Bank Group (Washington, DC) http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/p_2005SustReport_GHG/$FILE/GHG_Inventory_Final.pdf

- Ross & Associates, Seattle WA http://www.ross-assoc.com/footprint.asp

Reduce Your Impact: Take Action

Once you have established your carbon footprint, use this information to assess GHG reduction potential across key areas of your organization. Your efforts could focus on the greatest emissions or areas of your operations where you have the most direct control. Data from your footprint will serve as your baseline and will help you track your organization's progress over time. Set a credible emission reduction target and enlist your employees, suppliers, board members, shareholders, and even customers to support your climate change goals.

Engage Employees

Employers can build employee loyalty by involving them in goal setting or in the designing of strategies that achieve those goals. Engaged employees make for more successful workplace programs and are encouraged them to make changes in their personal lives. Employees are a great source of innovative ideas for reducing emissions.

The Washington State Commute Trip Reduction Law (CTR) requires businesses with more than 100 employees to implement a commute trip reduction program.
http://www.wsdot.wa.gov/tdm/program_summaries/ctr_summ.cfm

Set Targets

It is helpful to establish interim and long-term emissions reduction targets. Reducing GHG emissions is a long-term and on-going challenge. The predicted level of reductions needed worldwide is quite significant. Creating bold, forward-looking targets can help your organization make an impact while interim goals will help you monitor your progress and celebrate success.

There are two target types: **absolute** and **intensity** targets. Absolute targets are the total GHG reductions you intend to achieve. Intensity targets are normalized to a business activity like units produced or number of employees. There are advantages and disadvantages to each type of target. The need to reduce total emissions worldwide makes absolute targets very important. They also are easier to communicate to stakeholders. However, if your company is growing and increasing market share, an intensity target may better reflect opportunities and progress.

Reduce Emissions

The key to reducing GHG emissions is to change energy use through **energy efficiency**, **operational efficiencies**, or **renewable energy**. Generally speaking, many of the most significant emissions sources for Seattle-area employers result from employee commute trips, business related travel, goods and service delivery, process and building energy use, and material use and disposal. Strategies to reduce GHG emissions are typically operational improvements that save money, create brand value, inspire employees, and garner the trust of the communities in which you operate.

1. TRANSPORTATION

Motor vehicle emissions are the single largest source of climate change in Seattle (City of Seattle's Office of Sustainability and Environment, 2004). Congestion also negatively impacts our economy through delays in the transport of goods and services. With our region's population projected to grow 30 percent by 2020, we can expect a rise in traffic and congestion (Puget Sound Regional Council, 2006).

Employee Commute Trips

Commute trips account for approximately 57 percent of single-occupancy trips made in Seattle area each day (City of Seattle Department of Transportation, 2007). Employers can help decrease commute trips, congestion, and GHG emissions by taking the following actions.

- Provide subsidies for transit fares or van or car pooling
- Offer onsite amenities such as bike storage and shower facilities
- Support teleworking and flexible schedules
- Offer company vehicles or participate in car-sharing programs to minimize personal vehicle needs at the workplace.

Resources for Action

Flexcar provides access to low emissions vehicles in the Seattle area. Flexible, short-term mobility decreases the dependence on private automobiles. Flexcar provides detailed information on the emission reduction benefits of carsharing: www.flexcar.com or 206-332-0330.

King County administers the State of Washington's **CTR** program, which provides employers with technical assistance and incentives to help employees get out of their cars: http://www.metrokc.gov/kcdot/alts/employer/options/commute_options.htm

King County will reward organizations up to $5,000 for implementing a telework policy. **Telework** is an alternative work arrangement for employees to work away from the primary workplace (U.S. General Services Administration, 2003): http://www.commuterchallenge.org/grants.html#telework or 206-684-1104.

Business Travel

Employers can reduce emissions from business travel by utilizing electronic meeting technology, consolidating trips, and encouraging the use of alternative transportation or carpooling whenever practical. Airline travel can be carbon-intensive – especially for short trips – so try to consolidate air travel when it is necessary to make it multipurpose.

ACTION TIPS- COMMUTING

1. Encourage use of alternatives to single occupancy transport – provide incentives for employees to walk, bike, take the bus or carpool.
2. Support telecommuting, compressed work weeks, and flexible schedules.
3. Provide bicycle racks, lockers, changing areas and showers for employees who bike or walk to work.

Amgen - "Best workplace in 2006"

Amgen provides showers and lockers, onsite bike tune-ups, two bike shelters, ferry and bus rides, emergency cab rides, Flexcars, and a shuttle every 15 minutes to downtown. These incentives have helped 75% of its workforce to commute using alternative transportation. Jan Law, Amgen's Employee Transportation Coordinator (ETC) says, "Innovation means teamwork – whether we're making important scientific discoveries or finding efficient ways to commute" (King County Metro, 2005). http://seattlepi.nwsource.com/business/289033_workcommute18.html

4. Use electronic meeting technology such as tele- video- or web-conferencing.
5. Make multi-purpose business trips, visiting multiple clients, offices, or stakeholders in one visit.

Hybrids & BioFulels

King County is expanding its climate-friendly fleet. It currently has 213 hybrid diesel-electric buses. A total of 640 of its buses run on a fuel blend of 20% biodiesel and 80% ultra low-sulfur diesel. During one week in August 2006 when diesel prices were at a record high, Metro saved $12,000 by using this alternative fuel.
http://www.metrokc.gov/exec/news/2006/0817biodiesel.aspx

In 2000 **Earthwise Excavation** switched its heavy-equipment fleet from low-sulfur on-road diesel to 100% biodiesel fuel. The crew no longer ends the day with headaches, which were common with conventional diesel fuel. The 20% higher cost of biodiesel is partially offset by new business from clients that give preference to environmentally responsible companies.
http://www.heraldbusinessjournal.com/archive/dec04/earthwise-dec04.htm

Resources for Action

GroupSystems II, available at www.GroupSupport.com, is a software program that facilitates remote meetings over the internet.

Microsoft Live Meeting supports real-time business communication over the computer, thereby reducing time, expense, and environmental costs associated with travel: http://www.microsoft.com/uc/livemeeting/default.mspx

For an example of web-based teleconferencing software, check out the **WebEx** website: http://meetmenow.webex.com

FedEx-Kinkos maintains video-conferencing facilities across the United State: www.fedex.com

Goods & Service Delivery

The movement of goods and services can have a dramatic impact on GHG emissions. Emissions can come from fleet vehicles owned by your organization or through outsourced freight and transportation services.

Fleet Vehicles: Vehicles owned by your organization to move goods and services include passenger vehicles, trucking, and construction equipment. Increasing fuel efficiency helps decrease emissions from your vehicle fleet and can save your organization money through less fuel consumption.
- Invest in the smallest, most fuel-efficient vehicle that meets your needs
- Implement a program to reduce idling
- Maximize the delivery and transportation route efficiency
- Invest in alternatively powered vehicles such as hybrid electric and/or alternative fuels such as biodiesel

Contracted Transportation Services: If your business contracts with other companies to move goods and services, select transportation vendors with a commitment to reducing emissions or encourage existing vendors to reduce GHG emissions in their operations.
- Flexcar offers fleet vehicle services (passenger cars, vans and trucks) as well as hybrid vehicles which could help reduce your firm's need for maintaining a large vehicle fleet and cost-effectively take advantage of high-efficiency vehicles.
- FedEx is introducing hybrid delivery trucks into its operations with plans to replace 30,000 of its existing vehicles with the new technology. The hybrid vehicle increases fuel efficiency by 50 percent and reduces soot by 96 percent: http://www.environmentaldefense.org/partnership_project.cfm?subnav=project_fullstory&projectID=3.

- In 2006, PHH Arval, a leading fleet management company, and Environmental Defense (formally Environmental Defense Fund) launched a climate-neutral pilot of vehicle fleets to help PHH Arval clients track and reduce GHG emissions from fleet operations: http://www.phharval.com/fleetServices/phhGreenFleet.html.
- The US EPA and the freight industry are partnering to increase fuel efficiency and decrease GHG emissions. There are a several Washington-based firms participating in the SmartWay program: http://www.epa.gov/smartway/

➡ *Resources for Action*

The Puget Sound Clean Cities Coalition works to reduce petroleum consumption in transportation and promotes alternative fuels and vehicles, fuel blends, hybrid electric vehicles and idle reduction through education, technical assistance, access to grant funds and other services: http://www.pugetsoundcleancities.org or 206-684-0935.

PPRC, a local non-profit, offers a wide array of resources and incentives for alternative fuels for fleet vehicles. http://pprc.org/pubs/altfuels.cfm#fleets

US EPA's SmartWay Transport Program is a partnership with freight industry sectors which provides information, tools and resources to implement fuel-saving strategies that increase profits and reduce emissions: http://www.epa.gov/otaq/smartway

For **smart cars**, consider two-person electric vehicles for local trave: http://www.greencarco.com

Flexcar provides access to low emissions vehicles in the Seattle area. Flexible, short-term mobility decreases the dependence on private automobiles, trucks, and vans. www.flexcar.com

2. ENERGY: ELECTRICITY, NATURAL GAS & STEAM

While only 28 percent of Washington State's power comes from fossil fuel sources (Washington State Department of Commerce, Trade, and Economic Development, 2005), energy conservation is imperative to meeting the climate challenge. The Puget Sound region is projected to grow considerably over the next 15 years and most it its rivers have already been tapped to keep hydropower production steady. There are three utilities serving the Seattle area: Seattle City Light (SCL), Puget Sound Energy (PSE) and Seattle Steam. Both SCL and PSE offer a range of assistance and incentives to help customers conserve energy, support renewable energy, and improve their bottom line.

Building Energy Use

Applying green building design to new buildings or retrofits of existing buildings will help to lower GHG emissions and save significant dollars in energy costs. Green building design increases the efficiency with which buildings and their sites use and harvest energy, water, and materials, and reduce building impacts on human health and the environment. Green design often takes advantage of renewable resources and uses plants and trees to help regulate temperature and reduce rainwater run-off.

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ACTION TIPS - ENERGY

In buildings you own:
1. Turn HVAC systems on 1 hour before and off 1 hour after they are needed.
2. Turn off exterior lights during daylight and dust lights frequently to improve brightness.

In buildings you own or lease:
1. Turn down office thermostats at night.
2. Set computer monitors and other equipment to go into energy saving or sleep mode when not in use.
3. Install compact fluorescents and fluorescent tubes (T4 & T8).
4. Install dimmable light switches and individual workplace or task lighting.
5. Buy EPA Energy Star office equipment.

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Consider the following at your facility:

- **Heating Ventilation and Cooling (HVAC)**. HVAC systems run almost constantly and are commonly oversized. When the time comes to upgrade, consider installing smaller, more efficient technologies.
- **Lighting**. Carefully chosen lighting can improve productivity and save money. Consider installing devices such as motion control sensors and upgrading lighting to energy efficient fluorescents, compact fluorescents and light-emitting diodes (LEDs).
- **Building retrofits**. Retrofits such as insulated windows, a green (living) roof, or coating your roof with reflective paint can reduce the costs of energy to heat and cool the building.
- **On-site renewable energy**. Installing solar photovoltaic (PV) systems, solar thermal units, and small wind power systems can lower GHG emission, prevent operating loss during grid failure and protect from rising energy costs.

Resources for Action

Seattle City Light offers free facility assessments, financial incentives covering up to 60% of the cost of installing energy-efficient equipment and systems from lighting to industrial processes, and a lighting design lab. Small businesses call 206-684-3800; medium and large businesses call 206-684-3254 or http://www.seattle.gov/light/conserve/business

Puget Sound Energy offers technical assistance, on-line tools, and financial incentives including rebates and grants. For general information call 1-888-225-5773 or http://www.pse.com/solutions/ForBusiness_EfficiencyPrograms.aspx

As part of the **Washington Renewable Energy Production Incentives**, Seattle City Light and Puget Sound Energy offer customers annual incentive payments for generating renewable energy on-site: http://www.pse.com/solutions/rebatesOnRenewable.aspx http://www.seattle.gov/light/Conserve/cgen/

Seattle's Green Building Program offers customized tools and assistance about green building techniques for remodeling, construction and development projects: http://www.seattle.gov/dpd/GreenBuilding/OurProgram/Overview/default.asp or call 206-615-1171

GreenBiz.com offers guidelines and resources for reducing the environmental impacts of commercial buildings: www.greenerbuildings.com/

Process Energy Use

Efficiencies can be gained in production processes from simple steps such as adding insulation to more complex actions depending on the particular sector or process (Steward and Waage, 2006). Despite potential gains, many production process efficiencies go unrealized. One important climate change strategy for manufacturing and other process-based businesses is to encourage managers to re-think production processes in order to capitalize on energy savings.

- **Motor efficiency**. Efficient motors will pay for themselves in energy savings. This is particularly true if the motor runs between 12 and 24 hours.

- **Refrigeration**. EnergyStar qualified refrigerators are estimated to use 40% less energy than the conventional models and 15% less energy than required by current federal standards. Use the EnergyStar Savings Calculator to see how reduced energy consumption savings can save over time: *http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators*

- **Hot water.** Water-intensive industries such as laundries, hotels, and restaurants can save on their energy bill and reduce emissions through low-cost measures such as turning the temperature down or insulating the boiler and hot water pipes. Other measures include upgrading to efficient appliances such as dishwashers and food steamers and installing low-cost, low-flow showerheads, spray heads, and aerators in all faucets.

- **Condensate reuse**. Seattle hotels and hospitals with large heating and hot water requirements often choose steam heat over natural gas heat. A climate-friendly alternative to allowing steam condensate to run down the drain as waste water is to redirect it towards alternative uses within the facility.

⟳ *Resources for Action*

Seattle City Light offers free facility assessments, financial incentives covering up to 60% of the cost of installing energy-efficient equipment and systems from lighting to industrial processes, and a lighting design lab. Small businesses call 206-684-3800; medium and large businesses call 206-684-3254: http://www.seattle.gov/light/conserve/business

Puget Sound Energy offers technical assistance, on-line tools, and financial incentives including rebates and grants. For general information call 1-888-225-5773: http://www.pse.com/solutions/ForBusiness_EfficiencyPrograms.aspx

The Saving Water Partnership offers incentives and rebates to businesses who switch to efficient refrigeration, hot water appliances (e.g. food steamers, commercial clothes washers etc.), and process water improvements for up to 50% of upgrade cost: http://www.savingwater.org/rebates.htm or 206-684-5883.

Electronic and Office Equipment

Investing in energy-saving equipment and using these devices wisely can significantly reduce energy consumption. Energy-saving strategies for most office equipment include:

- Switch off equipment when it is not needed
- Activate energy saving features
- Buy energy-efficient equipment

Most major office appliances are available in **Energy Star** models. EPA's Energy Star label identifies equipment as energy-efficient. Another energy efficiency label to look for in computers and servers is **80 PLUS.** 80 PLUS requires that power supplies in computers and servers be 80% or greater energy-efficient at 20%, 50%, and 100% of rated load.

Northwestern Industries
Project: Glass tempering oven
Incentive Amount: $762,300
Energy Savings: $326,400/ yr
Production rate: Tripled
Payback: 4.4 years

Todd Shipyards
Project: Expanded saltwater pumping to replace use of potable water for process use.
Incentive Amount: $71,000
Water Savings: $100,000
Payback: <1 year

ACTION TIP – ELECTRONICS
Shutting down computers saves energy and **minimizes data exposure** to theft or power surges. Periodically shutting down the system also flushes out older files and boosts performance. An alternative to shutting down is hibernate or standby.

Computer monitors typically use 50 percent of the total energy used by the system.

3. MATERIALS & PRODUCTS

The products and inputs purchased to support operations emit GHG emissions throughout their entire **life-cycle** – during production, use, and disposal. Preventing waste, increasing the lifespan of a product, and supporting carbon-neutral products are important emission reduction strategies.

Computers

Computers generate a significant portion of their GHG emissions during production. The manufacturing of a single PC has been estimated to generate 140-436 kg of carbon dioxide. California estimated that if all 16,000,000 PCs in the state were upgraded to extend their useful lives from 4 years to 6 years, California could reduce carbon dioxide emissions by 18.7 kilotons per year (California Energy Commission, 2005).

Packaging

The choice of packaging materials—whether for mail-order fulfillment or just a large document—can make a difference. A study by Oregon's Department of Environmental Quality (DEQ) compared the environmental burdens of shipping soft goods in bags versus boxes with different fill materials. DEQ found that because using bags prevents material waste it also significantly reduces GHG emissions during production and transport.

Although producing a light material may generate more GHG emissions per pound than a heavy material, the appropriate measurement for environmental burden is not burden-per-pound but burden-per-product. With more weight, many environmental benefits can be lost. Material weight has a significant impact and can be a relevant, short-hand way to compare general environmental benefits, even across materials. The study also found that reducing material weight can be more important than increasing recycled content alone (Oregon Department of Environmental Quality, 2004).

Paper

The average American uses more than 700 pounds of paper each year (Environmental Defense Fund, 1995). The environmental and climate change impacts from paper are found throughout its entire life-cycle – from forest to landfill or recycling. A life-cycle analysis of office paper conducted by the Paper Task Force in 1995 found that the net GHG emissions from one ton of recycled paper was 63 percent less than the same amount of virgin paper. Key strategies for reducing GHGs through paper use include:

ACTION TIPS – MATERIALS & PRODUCTS

1. Set your printer and copier default to duplex.
2. Reuse 1-sided paper and recycle waste paper.
3. Use electronic media such as PDFs to share documents, meeting agendas, etc.
4. Purchase recycled content paper.

A **life-cycle analysis** is a comprehensive assessment of the environmental performance of a product including the raw material production, manufacture, distribution, use and disposal, and includes all intervening

CH2M Hill
Saved up to $10,000 by managing projects online and more than $30,000 by using CD-ROMs instead of paper.

Granum Inc, Seattle
Uses 100% recycled-content stock in all of its paper and paperboard products and recycles 70% of its total cardboard and mixed paper waste.

- Use less paper by duplex printing/copying, reusing 1-sided paper, and using electronic media.
- Use a high post-consumer recycled-content paper.
- Recycle waste paper. Disposing paper results in GHG emissions due to transportation and decomposition in landfills. Recycling paper creates more paper with less need for trees, energy and water.

Cement

The production of one ton of Portland cement – the most common type of cement – produces approximately one ton of carbon dioxide (The Climate Trust, 2005). Blended cement, which uses industrial by-products such as fly ash or slag, has the structural integrity needed with lower carbon intensity. The addition of slag and fly ash to cement almost directly replaces the amount of carbon dioxide produced in the cement clinker process. Therefore, one ton of cement with 50 percent industrial-by products would save one-half ton of carbon dioxide (Green Building Council of Central Pennsylvania, 2001). A recent test by the King County DOT Materials Lab indicates that concrete made from a mixture of cement and finely ground slag meets performance criteria for large mass foundations that will have increased "loading", or amount of weight added to them, over time (Cascadia Consulting Group, 2007).

Resources for Action

Environmental Defense Fund provides an online calculator to determine the environmental impacts of different types of paper, helping businesses make good paper choices: http://www.environmentaldefense.org/papercalculator

Seattle Public Utilities' **Resource Venture** program offers strategies for reducing paper use, as well as general resource conservation assistance. Call 206-343-8505 or go to http://www.resourceventure.org/rv/services/index.php.

Grays Harbor Paper is a local mill in Hoquiam, Washington that produces 100% recycled-content paper, among other products. In February 2005, Grays Harbor Paper added a second electrical generator powered by renewable fuels: http://www.ghplp.com

4. WASTE

Solid waste management presents many opportunities for GHG emission reductions. A 2006 US EPA study found that source reduction and recycling reduce emissions at the manufacturing stage, increase forest carbon storage, and avoid landfill methane emissions. When less of a material is manufactured or used, emissions associated with the manufacture and disposal of that product are avoided. When a material is recycled, it not only replaces virgin inputs (wood for example) but avoids methane gas emissions that result from decomposition of waste at the landfill. In addition, the combustion of solid waste with energy recovery in a waste-to-energy plant can displace fossil fuel-generated electricity from utilities, thus reducing GHG emissions from the utility sector (US EPA, 2006).

LaFarge

Seattle Climate Partner LaFarge, a multi-national cement manufacturer, has committed a 20% cut in net emissions per ton of cement worldwide and a 10% cut in absolute emissions in industrialized countries by 2010. Strategies include:
- Modernizing to improve efficiency
- Using alternative raw materials in cement production
- Using alternative fuels
- Using clinker additives such slag or fly ash

ACTION TIPS - WASTE
1. Reduce the number and size of garbage containers, making it more difficult to throw things away.
2. Set recycling bins next to garbage containers, making it easier to recycle.
3. Purchase items that can be recycled or taken back by manufacturers.
4. Take back electronic products such as print cartridges, computer monitors and printers to retailers that accept these such as Staples, Office Depot, etc.

EPA estimates that the 2000 national recycling rate of 30 percent yielded an annual GHG emission reduction of 32.9 million metric tons of carbon, equivalent to removing nearly 25 million cars from the road! Thus, waste prevention and recycling are essential climate-friendly strategies:
http://epa.gov/climatechange/wycd/waste/measureghg.html

➡ *Resources for Action*

Seattle Public Utilities' **Resource Venture** program to receive free assistance in creating and implementing a comprehensive recycling program: www.resourceventure.org or call 206-343-8505

Cedar Grove Composting, the region's largest recycler of organic material, offers food waste collection at your facility: http://www.cedar-grove.com

City of Seattle offers free recycling to small businesses: http://www.seattle.gov/util/Services/Recycling/Recycle_at_Your_Business/COMMERCIAL_200312020811284.asp

EPA provides information about the connection between waste disposal and GHG emissions: http://www.epa.gov/climatechange/wycd/waste/generalinfo.html

EPA provides information and resources about the benefits of buying recycled products: http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/buyman.htm

Monitor and Communicate Success

Tracking your progress over time will not only help you to refine reduction strategies but will also allow you to tell your story to employees, customers, and the communities in which you operate. Calculating the costs and savings from reductions strategies helps you implement the most practical reduction strategies for your company over time and will help you show that GHG emission reductions make good business sense.

Be sure to let your employees, customers, suppliers and vendors know that climate protection is a priority and that your organization is taking action to reduce its impact. Communicating your commitment and successes can inspire trust in your business and improve relations with the communities around you. There are several local programs that recognize environmental accomplishments:

- ▪ Governor's Award for Pollution Prevention and Sustainabile Practices - http://www.ecy.wa.gov/sustainability/GovAward/gov_awards.htm
- ▪ Seattle Public Utilities Resource Venture awards - http://www.resourceventure.org/rv/services/awards-and-rec/index.php
- ▪ Washington Association of Businesses Environmental Excellence awards: http://www.awb.org/about/awards/index.asp
- ▪ Annual Commuter Challenge Diamond Awards: http://www.commuterchallenge.org/diamond.html

Seattle University
Recycled 77% of the 328 tons of construction waste generated during construction of the new student center, thus recovering 600 tons of recyclable materials.

Aaron's Bicycle Repair
Saves $400 annually by recycling cardboard, paper, aluminum and scrap iron, besides old inner tubes and

Support Renewable Energy

Once your organization has reduced its emissions as much as practical, a next step is to consider supporting renewable energy in your operations and elsewhere. Renewable energy (also known as green power) has low impact on the environment and human health and does not contribute to GHG emissions. These energy sources include:

- Solar
- Wind
- Biomass
- Landfill gas
- Geothermal
- Some types of certified hydropower

There are a number of local opportunities for purchasing renewal energy directly through your energy provider. In addition to considering your own energy sources, you should try to purchase products made with renewable energy.

Resources for Action

Seattle City Light (SCL) offers a Renewable Energy Production Incentive, paid annually, for customers that generate renewable electricity from solar or wind on site. For more information call 206-684-3954 or go to http://www.seattle.gov/light/Conserve/cgen/cv5_cgen2.pdf

SCL's Green Up Program allows all customers to purchase green power from the Stateline Wind Project in Washington and Oregon. The premium is 1.5 cents per kilowatt hour. Business recognition is based upon your company's annual electricity use and percent that you green up. For more information call 206.684.3954 or go to http://www.seattle.gov/light/Green/greenPower/greenup.asp

Puget Sound Energy's (PSE) Green Power Business Program enables customers to purchase a portion or all of their annual electricity consumption as green power. For more information call 1-800-562-1482 or go to http://www.pse.com/solutions/businessGreenPower.aspx

World Resource Institute's *Switching to Green: A Renewable Energy Guide for Office and Retail Companies* is a practical resource for companies that want to "green" their energy supply: http://pdf.wri.org/switching_to_green.pdf

Purchase Offsets

If you have reduced your emissions as much as practical and you still want to do more, consider purchasing carbon offsets. Offsets are activities that reduce or sequester GHG emissions. Offsets are often used to help organizations meet GHG reduction targets when the cost of internal reductions is too high. This market-based approach allows you to invest offset payments in increased energy efficiency or clean technologies. Common offset projects include reforestation, energy efficiency programs, cogeneration, and renewable energy investments.

There are a number of organizations that evaluate and invest in offsets for you. Not all offsets are equal. Be sure to examine the criteria used by whatever offset purchaser you select and make sure that your investment is supporting a project that would not happen otherwise. Some of the key attributes of offset companies and projects to consider are the standards used to select the offset project, the quality of the offset, whether or not the offset can be verified, price, and mechanisms to verify that the project meets the offset company's standards and stated goals. There are several recent reports (highlighted below) that evaluate offset companies to help consumers make informed offset purchases.

Resources for Action

The Climate Trust buys offsets in the U.S. and world markets and can customize offset acquisition programs to fit your company's needs: http://www.climatetrust.org/about_offsets.php

Purchase **Green Tags** through the **Bonneville Environmental Foundation** to pay for offsets that are created when wind or other renewable energy is substituted for traditional power. Also known as Renewable Energy Credits (RECs), or Tradable Renewable Certificates (TRCs), Green Tags allow companies to support the growth of renewable energy sources without buying renewable energy directly: http://www.b-e-f.org

Native Energy is a privately held Native American energy company that builds Native American, farmer-owned, community based renewable energy projects: http://www.nativeenergy.com/

The Chicago Climate Exchange is North America's only, and the world's first, voluntary, legally binding rules-based GHG emission reduction and trading system: http://www.chicagoclimatex.com/

Clean Air-Cool Planet released a report that evaluates a number of US-based retail offset providers and offers useful information to help consumers make informed decisions: http://www.cleanair-coolplanet.org/ConsumersGuidetoCarbonOffsets.pdf

The Tufts Climate Initiative authored a paper to evaluate and recommend voluntary offset companies for offsetting air travel emissions: http://www.tufts.edu/tie/tci/pdf/TCI_Carbon_Offsets_Paper_April-2-07.pdf

⮕ RESOURCES: QUICK LIST

Mandatory GHG Initiatives

Kyoto Protocol http://unfccc.int/kyoto_protocol/items/2830.php

Regional Greenhouse Gas Initiative http://www.rggi.org/about.htm

State of California's Global Warming Solutions Act of 2006 http://gov.ca.gov/index.php?/press-release/4111

Voluntary GHG Initiatives

Chicago Climate Exchange (CCX) http://www.chicagoclimatex.com

EPA's Climate Leaders Program http://www.epa.gov/climateleaders

Climate Change

Intergovernmental Panel on Climate Change (IPCC) http://www.ipcc.ch

Carbon Dioxide Concentrations http://www.globalwarmingart.com/wiki/Image:Mauna_Loa_Carbon_Dioxide_png

Global Temperatures http://upload.wikimedia.org/wikipedia/en/f/f4/Instrumental_Temperature_Record.png

Climate Change in the Pacific Northwest

Impacts of Climate Change on Washington's Economy http://www.ecy.wa.gov/pubs/0701010.pdf

Climate Impacts Group of the University of Washington http://www.cses.washington.edu/cig

Climate Impacts on Columbia River Basin Fish & Wildlife http://www.nwcouncil.org/library/isab/isab2007-2.pdf

Climate Change Building Blocks http://www.tag.washington.edu/projects/ClimateBuildingBlocks_Final_Oct5.pdf

Union of Concerned Scientists http://www.ucsusa.org/global_warming/science/global-warming-faq.html

National Resources Defense Council http://nrdc.org/globalWarming/fgwscience.asp

Climate Change Action

Seattle Climate Partnership (SCP) http://www.seattle.gov/climate/partnership.htm or call 206-386-4595

World Resources Institute's *Hot Climate, Cool Commerce: A Service Sector Guide to Greenhouse Gas Management* http://pdf.wri.org/hotclimatecoolcommerce.pdf

ClimateBiz http://www.climatebiz.com/sections/backgrounder_detail.cfm?UseKeyword=Business%20Case

Pew Center on Global Climate Change http://www.pewclimate.org/global-warming-in-depth/all_reports/corporate_strategies/index.cfm

The Climate Group http://www.theclimategroup.org

Business for Social Responsibility http://www.bsr.org/meta/BSR_Climate-Change-Report.pdf

The Clean Air-Cool Planet on-line Campus Climate Action Toolkit (CCAT) http://www.cleanair-coolplanet.org/toolkit

Carbon Inventory and Footprint Tools

Seattle Climate Partnership Carbon Inventory Calculator www.seattle.gov/climate/SCPresources.htm

The GHG Protocol Initiative http://www.ghgprotocol.org/

GHG Protocol Tools & Resources http://www.ghgprotocol.org/templates/GHG5/layout.asp?type=p&MenuId=OTAx

ClimateBiz Tools and Resources
http://www.climatebiz.com/sections/backgrounder_detail2.cfm?LinkAdvID=42095&UseKeyword=Measuring%2C%20Reporting%20%26%20Verification

http://www.climatebiz.com/sections/toolsresources_detail.cfm?LinkAdvID=38985

US Climate Technology Cooperation GHG Equivalency Calculators http://www.usctcgateway.net/tool

US EPA's Waste Reduction Model (WARM)
http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteWARM.html

US EPA's Recycled Content (ReCon) Tool
http://yosemite.epa.gov/oar/globalwarming.nsf/content/ActionsWasteToolsRecon.html

Carbon Inventory and Footprint Reports (examples)

International Finance Corporation World Bank Group
http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/p_2005SustReport_GHG/$FILE/GHG_Inventory_Final.pdf

Ross & Associates http://www.ross-assoc.com/footprint.asp

Reduce Emissions: Transportation

Commuting & Business Travel

Washington State Commute Trip Reduction Law (CTR)
http://www.wsdot.wa.gov/tdm/program_summaries/ctr_summ.cfm

King County CTR Resources http://www.metrokc.gov/kcdot/alts/employer/options/commute_options.htm

Telework Resources http://www.commuterchallenge.org/grants.html#telework or 206-684-1104

WebEx Web-Based Meetings & Collaborations http://meetmenow.webex.com

FedEx-Kinkos Video-Conferencing Ffacilities www.fedex.com

Fleets & Fuels

Flexcar Car Sharing Program www.flexcar.com or (206) 332-0330

US EPA SmartWay Transportation Partnership http://www.epa.gov/smartway/

Biodiesel Information http://www.epa.gov/smartway/growandgo/documents/factsheet-biodiesel.htm

The Puget Sound Clean Cities Coalition Tools & Resources http://www.pugetsoundcleancities.org or 206-684-0935.

PPRC Resources & Tools for Alternative Fuels http://pprc.org/pubs/altfuels.cfm#fleets

The Green Car Company's Smart Cars http://www.greencarco.com

Reduce Emissions: Energy

Local Conservation Assistance

Seattle City Light Conservation Assistance http://www.seattle.gov/light/conserve/business/ Small businesses call 206-684-3800; medium and large businesses call 206-684-3254

Lighting Design Lab, http://www.lightingdesignlab.com or 206-325-9711

Puget Sound Energy Conservation Services http://www.pse.com/solutions/ForBusiness_EfficiencyPrograms.aspx or 1-888-225-5773

Renewable Energy Production Incentives http://www.pse.com/solutions/rebatesOnRenewable.aspx
http://www.seattle.gov/light/Conserve/cgen/

The Saving Water Partnership http://www.savingwater.org/rebates.htm or 206-684-5883

Green Building Assistance & Information

Seattle Green Building Assistance & Incentives
http://www.seattle.gov/dpd/GreenBuilding/OurProgram/Overview/default.asp or call 206-615-1171

GreenBiz Resources for Green Buildings www.greenerbuildings.com/

US Green Building Council, http://www.usgbc.org/

Energy Efficient Equipment

Energy Star Products http://www.energystar.gov/index.cfm?c=home.index

Smart Computing
http://www.smartcomputing.com/Editorial/article.asp?article=articles/webonly/techsupport/04w10/04w10.asp&guid=http://www.greenhouse.gov.au/lgmodules/wep/office/training/training3.html

80 Plus Qualified Computers http://www.80plus.org

Reduce Emissions: Materials

Green-e certifies renewable electricity products http://www.green-e.org/

Environmental Defense Fund Paper Calculator http://www.environmentaldefense.org/papercalculator

Resource Venture offers resource conservation services. For assistance call 206-343-8505 or
http://www.resourceventure.org/rv/services/index.php.
Buying Recycled http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/wrr/buyman.htm

Grays Harbor Paper (post consumer content made with renewable energy) http://www.ghplp.com or toll-free 1-877-548-3424

City of Seattle PaperCuts Program http://www.seattle.gov/papercuts

Reduce Emissions: Waste

City of Seattle Ban on Paper and Cardboard in Garbage
http://www.resourceventure.org/rv/publications/waste/AdminRule.pdf

Climate Change & Waste http://epa.gov/climatechange/wycd/waste/basicinformation.html

Seattle Public Utilities Resource Venture Program www.resourceventure.org or call 206-343-8505

Cedar Grove Composting's Organics Recycling Service http://www.cedar-grove.com

Free Recycling for Small Businesses
http://www.seattle.gov/util/Services/Recycling/Recycle_at_Your_Business/COMMERCIAL_200312020811284.asp or call
206-343-8505

Recognition: Climate-Friendly Practices

Governor's Award for Pollution Prevention & Sustainable Practices
http://www.ecy.wa.gov/sustainability/GovAward/gov_awards.htm

Seattle Public Utilities Resource Venture Awards http://www.resourceventure.org/rv/services/awards-and-rec/index.php

Washington Association of Businesses Environmental Excellence Awards http://www.awb.org/about/awards/index.asp

Annual Commuter Challenge Diamond Awards http://www.commuterchallenge.org/diamond.html

Renewable Energy

Puget Sound Energy & Seattle City Light Renewable Generation Incentives
http://www.pse.com/solutions/rebatesOnRenewable.aspx http://www.seattle.gov/light/Conserve/cgen/

Seattle City Light's Green Up Program http://www.seattle.gov/light/Green/greenPower/greenup.asp

Seattle City Light's Green Power Program http://www.seattle.gov/light/Green/greenPower/greenpow.asp

Puget Sound Energy's Green Power Business Program http://www.pse.com/solutions/businessGreenPower.aspx or call 1-800-562-1482

World Resources Institute's *Switching to Green: A renewable energy guide for office and retail companies* http://www.wri.org/climate/pubs_description.cfm?pid=4250

Green-e certifies renewable electricity products. http://www.green-e.org/

EPA's Green Power Partnership http://www.epa.gov/greenpower

Carbon Offsets

The Climate Trust http://www.climatetrust.org/about_offsets.php

The Bonneville Environmental Foundation http://www.b-e-f.org

Native Energy http://www.nativeenergy.com/

Chicago Climate Exchange (CCX) http://www.chicagoclimatex.com

Clean Air-Cool Planet's Offset Review Report
http://www.cleanair-coolplanet.org/ConsumersGuidetoCarbonOffsets.pdf

Tufts Climate Initiative Air Travel Offset Paper
http://www.tufts.edu/tie/tci/pdf/TCI_Carbon_Offsets_Paper_April-2-07.pdf

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