San Francisco Bay Area Clean Fleets Toolkit
A Guide for On-Road Commercial Fleets

A Joint Partnership of:
The Sustainable Earth Initiative (SEI)
and
The San Francisco Department of the Environment (SF Environment)

With Financial Support from
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sustainable EARTH initiative

SF Environment
Our home. Our city. Our planet.

Bay Area Air Quality Management District
Committed to Achieving Clean Air to Protect the Public's Health and the Environment

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We would love your feedback!

We'd like to know who uses this guide and how it can be improved.

Please send your comments, questions, ideas, and experiences to info@sustainableearthinitiative.org

HOW TO USE THE CLEAN FLEETS TOOLKIT

Who is this Toolkit For?

This toolkit is designed for the managers and staff of commercial fleets in the Bay Area. It specifically seeks to provide Bay Area commercial fleet managers with best management practices (BMPs), action plans, and tools to help measure and reduce greenhouse gases (GHGs) and other harmful emissions. It has not been developed with any particular sector, fleet size, or fleet type in mind. Rather, it contains useful information for those that have begun thinking of ways to reduce the environmental and public health impact of their fleets. The authors hope that readers will use this toolkit for further research and as an instrument of discussion internally and externally.

Getting the Most out of the Toolkit

This toolkit walks through the various steps and BMPs that a fleet should consider when developing a strategy to reduce its GHG and other emissions. It includes case studies, action plans, calculators, and resources to go to for further information. The reader should feel free to flip through the BMPs in Step 3 to find those that apply to the size, type, and culture of their organization.

Companies will find that the degrees of difficulty, cost savings, and expense associated with implementing the various BMPs will vary. For example, driver training and idle reduction programs will be much easier and inexpensive to implement in the short-term than converting a fleet to an alternative fuel. The worksheet in Step 3 will help in your evaluation of the BMPs.

Structure of the Toolkit

The following toolkit has been devised to provide Bay Area commercial fleet managers with a suite of tools to reduce GHGs and other emissions. These tools include links to additional information, cost benefit calculators, financial resources, action plans, and more. The tools are built into a series of clean fleet steps described as follows:

Step 1) Build Awareness and a Clean Fleets Team: This process involves developing a plan to create a clean fleet and obtaining buy in from management. Actions to be taken include identifying who will work on the clean fleet effort, determining why it should be done, deciding on a company policy, and determining compliance with existing and future laws.

Step 2) Identify Impacts & Set Targets: This process is designed to help you estimate your fleet's current environmental performance and identify room for improvement.

Step 3) Consider & Select Best Management Practices (BMPs): This step is designed to help you develop a suite of BMPs that will help your organization with its objectives and targets and to prioritize the BMPs based on cost, environmental benefit, and other variables. These BMPs have been proven to reduce GHG and criteria pollutant emissions.

Step 4) Implement and Monitor Progress: This step is designed to help you develop an action plan to implement the BMP options that you selected in Step 3 and to continually monitor progress.

You will find the following helpful icon symbols throughout the toolkit:

Success Stories: Illustrates examples of successful clean fleet initiatives, practices, or policies, implemented by private and public organizations .

Keys to Success: Indicates keys to successful clean fleet implementation.

Tools: Identifies helpful tools for implementing clean fleet initiatives or practices.

Caution: Identifies things to avoid as you implement your clean fleet effort.

Statistics: Provides side bits of information that might be useful as you plan for your clean fleet effort.

Money bags: Helps point you to financial resources that can help you fund your clean fleet effort.

Justice Scales: Identifies laws and regulations that might affect your clean fleet effort.

Calculator: Identifies useful calculators that can help you evaluate the costs versus the benefits of implementing a BMP or other measure.

Introduction

In 2006, The State of California passed landmark legislation to address the widespread effects of climate change. Once fully developed and implemented, AB32, also known as the Global Warming Solutions Act will require major changes in the way business is done in California. The transportation sector, which contributes approximately 40 percent of the State's and 51% of the Bay Area's global warming pollution, will be no exception. Meeting the law's requirement will require a holistic strategy to, among other things, reduce fossil fuel-based petroleum use, reduce travel demands, and switch to low carbon fuel sources. Commercial fleets will be requested and potentially mandated through regulation to play a major role.

To help commercial fleets prepare, the Sustainable Earth Initiative (SEI) and the San Francisco Department of the Environment (SF Environment) have partnered to develop a toolkit of BMPs for commercial vehicle fleet managers in the Bay Area. These practices are designed to help a fleet become "cleaner," which means having less impact on the environment and human health.

It is estimated that private commercial fleets travel over 4.8 million miles within the Bay Area. These fleets can range from 1 vehicle to hundreds or even thousands of vehicles. The combined effect of these fleets on the environment and public health can be very significant. For example, a recent study by The California Air Resources Board and the Bay Area Air Quality Management District (BAAQMD) available at www.arb.ca.gov/ch/communities/ra/westoakland/documents/draftsummary031908.pdf indicated that emissions from on-road heavy duty trucks were the largest contributor to elevated potential cancer risk levels for people living near the Port of Oakland. While it is impossible to know how much is contributed by private versus public fleets, diesel emissions in this area are overwhelmingly from private fleets going to and from the port.

Fleet Impacts

Fleets emit air pollutants that are harmful to both human health and the environment. These pollutants can be grouped into two categories:

Category 1: Human Health/Criteria Pollutants

- Particulate Matter (PM)
- Carbon Monoxide (CO)
- Volatile Organic Compounds (VOCs)
- Sulfur Oxides (SOX)
- Nitrogen Oxides (NOX)
- Lead (Pb)

Category 2: Primary Pollutant that causes climate change

- Carbon Dioxide (CO2)

The category 1 pollutants can negatively impact human health and contribute to ailments including asthma, chronic bronchitis, cardiovascular disease, cancer, and the irritation of the eyes and nasal passages. Some

of these pollutants can also cause environmental damage in the presence of sunlight or when combined with each other or other pollutants.

The category 2 pollutant CO2, is the primary greenhouse gas that causes climate change, often referred to as global warming. Other pollutants include methane, chloroflourocarbons, and nitrous oxide. Climate change is an incremental alteration in the earth's temperature that results from the accumulation of greenhouse gases (GHGs). These gases absorb the sun's infrared radiation after being reflected from the earth's surface. Climate change is a more appropriate and descriptive term than global warming because the temperature increases may cause some areas of the world to actually become cooler than normal.

As a coastal region, The Bay Area is particularly susceptible to the effects of climate change. The worst predictions for climate change could see major sea level rise in the San Francisco Bay Area with the loss of valuable real estate and plant and animal habitat.

What is a Clean Fleet?

While there is no established and formal definition of a "clean fleet," organizations have used the term to refer to fleets that have less of an impact on the environment and human health. The State of Oregon defines a clean fleet as "a collection of vehicles and equipment managed by an organization that implements policies, programs and practices addressing the procurement, management and operation of the fleet in order to improve energy efficiency and reduce emissions." The City and County of San Francisco is a national leader in alternative fuel and clean vehicle technologies and cutting edge clean fleet and climate change policies. Powered by compressed natural gas, electricity, B20 biodiesel, plug-in hybrid demonstration and hybrid-electric vehicle technologies, the city's clean air vehicles emit fewer pollutants and contribute to national energy security by reducing oil consumption. The San Francisco Taxi Fleet considers its fleet clean due to its use of compressed natural gas and hybrid electric vehicles. What constitutes a clean fleet is generally in the eye of the beholder but most set out to build a clean fleet with the following three overarching goals in mind:

1) Reducing the fleet's impact on the environment and human health
2) Identifying opportunities to save costs and build better relations with stakeholders
3) Preparing for future conditions and regulatory requirements

Any size or type of fleet can be made clean. Companies have undertaken greening initiatives for fleets of cars used by sales people and fleets of heavy-duty tractor-trailers used for product delivery. The key is to have a plan in place that will work for your organization.

Elements of an Effective Clean Fleet Program

1. A GHG Inventory (baseline);
2. GHG and fuel efficiency targets;
3. A comprehensive plan that includes:

⇒ Goals
⇒ Milestones
⇒ Staff responsibilities
⇒ Commitments from top management
⇒ Monitoring and implementation strategies.

Core Characteristics of a Clean Fleet

A typical clean fleet will often have some or all of the following characteristics:

- **A Fleet Management System** – A fleet management system is a comprehensive system that can help a company manage every aspect of its operation including risk management, license and title services, preventative maintenance, and fuel management. A fleet management system should be designed to fit the needs of the fleet; software can be purchased from a vendor or can be outsourced to a company that takes over management of the fleet.

- **A Preventative Maintenance Program** – Preventive maintenance is a schedule of planned maintenance activities undertaken with the goal of preventing breakdowns and optimum fuel efficiency. The goal of preventive maintenance is to prevent the failure of equipment before it actually occurs.

- **Green maintenance and repair facilities** – More than 31,000 vehicle service and repair shops exist in California. Individually, these businesses do not generate a lot of hazardous waste, but collectively they represent a large source of pollution. Fleet maintenance facilities can identify opportunities to save money, conserve resources, reduce emissions, reduce permitting fees, and help meet compliance with environmental rules by making simple changes to shop practices.

- **Driver Training Programs:** Driver training programs teach drivers practices that consume less fuel.

- **The integration of more fuel efficient vehicles**: Most clean fleets to one degree or another are integrating hybrid vehicles, flex fuel vehicles, and/or alternative fuels into their existing fleets. Some fleets have converted or are in the process of converting their entire fleet to alternative fueled vehicles.

AB 32, Global Warming Solutions Act of 2006 & The "Big Rig" Rules

As mentioned in the introduction to this toolkit, AB 32 will require organizations to reduce their fleet's contribution to climate change. Greening your vehicle's fleet will help prepare your organization for future regulation. Voluntarily greening your fleet may help you lock in lower costs for equipment, give you access to funding in a less competitive atmosphere, and demonstrate to stakeholders that you are ahead of the regulatory curve. The following section provides a brief overview of AB 32 and two California Air Resource Board landmark rules to clean up pollution from heavy-duty vehicles.

The Global Warming Solutions Act (AB 32)

The Global Warming Solutions Act (AB 32) will use regulatory and market based tools to achieve quantifiable and cost effective reductions in GHG emissions in California. A "Climate Action Team" will coordinate statewide efforts while CARB will be responsible for monitoring and reducing GHG emissions through regulation.

AB32 takes into account that transportation accounts for more than 40% of all GHG emissions in California. AB32 regulations will mandate, among other strategies, fuel efficiency standards, the use of lower carbon content fuels (The Low Carbon Fuel Standard), the retrofitting and replacing of heavy diesel engines, and various other vehicle efficiency improvements.

The Statewide Truck and Bus Rule & AB 32 Truck Efficiency Rule

Heavy duty big rigs are the largest remaining unregulated source of diesel emissions. The Statewide Truck and Bus rule will require truck owners to install diesel exhaust filters on their rigs beginning in January of 2011. Any vehicle older than model year 2010 which is not retrofitted must be replaced according to a schedule. More than a billion dollars in funding is available to help owners with this upgrade; available funds include Carl Moyer grants for early or surplus compliance, Proposition 1B (Transportation Bond Program) funds when related to goods movement and low cost loans under AB 118 (Alternative Fuel and Renewable Fuel and Vehicle Technology Program) for early compliance. The Heavy Duty Vehicle Greenhouse Gas Emissions Reduction rule, also known as the AB 32 truck efficiency rule will require long-haul truckers to install fuel efficient tires and aerodynamic devices on their trailers for the purpose of improving fuel economy and lowering GHG and other emissions.

AB 32 establishes a statewide GHG cap equal to 1990 emissions levels to be achieved by 2020. An ambitious goal such as this will require an expansive overhaul of fuel and energy consumption, especially so in the transportation sector.

The California Air Resources Board has created a calculator to help fleet owners determine compliance with the Statewide Truck and Bus Rule Regulations.

www.arb.ca.gov/msprog/onrdiesel/calculators.htm

For more information on AB32, visit the California Air Resources Board Climate Change website at :
www.arb.ca.gov/cc/cc.htm

Fore more information on the Statewide Truck and Bus Rule and AB 32 Truck Efficiency Rules, visit the California Air Resources Board Statewide Truck and Bus Regulation page at :
www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm

STEP 1: BUILD AWARENESS AND A CLEAN FLEETS TEAM

Fleet managers must develop an awareness of the need for change in their current fleet practices and the benefits of such changes. Altering a company's fleet may involve some sacrifice (reduced vehicle size, reduced idling) but staff may be more willing to make these changes if the benefits are compelling. Many employees don't realize that small changes made company wide can bring real costs savings to their companies. Highlighting these cost savings may convince skeptical employees to join the charge. Building awareness in your organization may involve the following steps:

1) Make the Case for Taking Action

You and your staff may want to consider the following reasons for implementing clean fleet practices:

A) *Saving Money*

For many fleets, reducing GHGs and other emissions will result not only in environmental and health benefits but also real cost savings. For example, installing a relatively inexpensive device that shuts a fleet vehicle's engine off after 5 minutes of idling can save money in terms of reduced fuel consumption. According to the EPA, a typical diesel vehicle burns one gallon of fuel for every one hour of idling. At current diesel prices, this can end up being a large sum of money. For example, United Parcel Service utilized a variety of idle reduction technologies to realize a savings of $188 per driver per year at two Georgia test sites.

B) *Taking Responsibility for the Fleet's Impact*

This is your company's opportunity to reduce its impact on our global climate and the health of people. Climate change is a serious problem that may have tangible effects in the Bay Area, and there are health effects of diesel pollution, especially on children. Solving these problems will require a concentrated and comprehensive effort; improved fleet management can contribute to the solution.

C) *Becoming a Leader*

Your organization can become a leader within your sector. Many well-known companies such as PG&E, UPS, and AT&T are making commitments to clean their fleets or have already made significant progress in doing so. The benefits of leadership can include significant cost savings and excellent public relations for your organization.

D) *Improving Employee Morale*

Companies have demonstrated that reducing the impact of their organizations on the environment can have significant benefits for employee retention and morale. Polls have shown that the majority of Americans believe that climate change is a serious issue that must be addressed. Employees enjoy working for a company that is environmentally and socially responsible. Satisfied employees can lead to increased retention rates and more productive workers.

STEP 1: BUILD AWARENESS AND A CLEAN FLEETS TEAM

2) Commit to the Process

Once your company has decided to develop a clean fleet, certain decisions must be made to lay the groundwork for success. Some of the decisions may need to be made at the managerial level.

Building a clean fleet can be a significant undertaking. It will require time and money for research and data compilation. Before you start, make sure the decision-makers in your organization are prepared to commit to a long-term plan to reduce your fleet's impact.

3) Identify a Clean Fleets Team

Develop a team of individuals to serve as your clean fleets team.

A) Find Your Clean Fleet Champion

Developing a clean fleet will require behavior changes, new procedures, and some additional expenditures. Many decisions need to be made that require someone truly focused on the effort. For this reason, it is pivotal to appoint a "clean fleet's champion" who will serve as the team leader. The clean fleets champion's job description should be amended to include the various duties and responsibilities associated with building a clean fleet. Memorializing clean fleet tasks in the job description will increase the likelihood that staff and management will be accountable and dedicate the time and resources to sustain the effort.

B) What are the qualities of a Clean Fleet Champion?

Enthusiasm counts for a lot when deciding on who should be your clean fleets champion since the person will need to motivate others to endorse and support the initiative. A person who is pragmatic about environmental issues may fit the bill. It is also crucial to identify a person who is an effective and persuasive communicator. There is no doubt that the champion will have to regularly present his or her targets, goals, requests, and progress to the organization. The clean fleet champion should understand fleet management and budgeting. While there are many user friendly programs for managing the data necessary to develop and monitor a clean fleets program, some data crunching of GHGs and fuel consumption is inevitable.

4) Develop a Budget

It is important to develop and allocate a budget that will support the work of your chosen clean fleets champion. The number of hours and dollars budgeted will depend on the size of your fleet, the organization's ambitions, your starting point (baseline), and the complexity of your operation. Training and research will have to be accounted for in your budget. You will need to budget some basic resources for the project. As you begin to identify what measures you will take to clean your fleet, you will have a better idea what the larger costs will be for the budget.

Keys to building an effective clean fleet team

- ⇒ Designate a team leader with decision-making authority for the project.
- ⇒ Appoint team members who represent a cross section of the organization.
- ⇒ Be prepared to change or rotate team members.
- ⇒ Ensure that all supervisors support the work of the team.

The City of San Jose, CA established a clean fleets team composed of representatives from fleet management, environmental services, finance, the City Manager's Budget Office, and rotated in individuals from other selected departments.

STEP 2: IDENTIFY IMPACTS & SET TARGETS

STRATEGIES TO COLLECT FUEL USE BASELINE DATA

Fuel represents the greatest cost of running a fleet and is therefore the most important criteria to measure for improvement. The following are some ways to collect accurate fuel use data

1) **Implement a fleet fuel card program** - Allowing drivers to use cash and credit cards prevents you from being able to capture key data on fuel use. Using a fleet fuel card can capture this data accurately and automatically.

2) **Install an Automated Fuel Management System** - This technology draws mileage or hours of operation data from vehicle boxes and can be customized to allow extensive reporting options.

3) **Use Telematics** - See BMP #1 for a description of telematics.

Establish Your Baseline

What Gets Measured Gets Managed

After you have obtained the support from top management to develop a clean fleet program, the next step is to establish a baseline for your fleet. A baseline is your fleet's performance at a given time, usually a certain year. That performance may be in terms of fuel consumption, vehicle miles traveled, reduction in GHGs or other pollutants, or some other metric. A baseline allows you to identify opportunities to reduce your fleet's impact, set targets, and implement BMPs to achieve your organization's fleet goals.

Fuel Use and GHG:

In many cases, the targets that your organization sets will define what data should be collected on your fleet. For example, if your fleet target is to reduce fuel use by 10% over year 2000 levels, you will need to collect data on your fleet's consumption in year 2000. If your goal is to reduce GHGs by 20% of 1990 levels, you will need to collect fuel usage data to determine your GHG emissions in 1990. Thus, the data you will compile includes:

- Fuel cost
- Fuel use (by type)
- Miles per gallon (MPG) achieved by vehicles
- Current GHG emissions.

Fleet Profile:

To analyze your transportation needs against your existing fleet, compile an inventory that includes:

- Number of vehicles, by class,
- Types of vehicles,
- Fuel efficiency (measured by MPG)
- Fleet turnover rates and plans for the near future,
- Number of alternative vehicles, by class,
- Vehicle miles traveled per year (VMT),
- Vehicle acquisition, operation, and maintenance costs.

Cleaning up the San Francisco Taxi Fleet

Before its dissolution in April 2009, the San Francisco Taxicab Commission managed the roughly 1,500 taxis that operate in the City. By legislative mandate, the San Francisco taxi fleet is working towards the goal of reducing GHG emissions by 20% from 1990 levels. Before being disbanded, the Commission had to phase in more stringent targets. By 2015, the San Francisco Taxi Commission is working to further reduce GHG emissions in line with the San Francisco Community-Wide GHG emissions reduction goals of 25% by 2017. It plans to accomplish this goal by investing in renewable energy (solar panels on vehicles, the use of reflective paint to reduce inside vehicle temperatures). By 2020, the San Francisco Taxi Commission plans to have a zero emissions fleet by using technology and alternative fuels to eliminate tailpipe emissions.

STEP 2: IDENTIFY IMPACTS & SET TARGETS

Fleet Inventory/Profile

Year	Make	Model	Vehicle Miles Traveled Annually	Fuel Efficiency (MPG, etc.)	Fuel Type

Identify Areas for Improvement

After compiling the data on fuel usage and your fleet profile, you may be able to identify some potential areas of improvement. For example, there may be a number of vehicles that are underutilized and could be eliminated. Or you may see that you have large trucks or vans being used to deliver products that could easily be delivered in a more fuel efficient automobile.

Whatever the case, it is important to make a list of those areas where improvements can realistically be made. Identify "low hanging fruit" or changes that can be made relatively easily in the short-term with immediate results. Identifying early successes that have tangible benefits will invigorate the clean fleet's team and help convince any naysayers. Examples of Low Hanging Fruit:

- Reduce idling
- Check tire pressure
- Unload excess material (lighten the load)
- Tune Engines
- Implement a strong preventative maintenance (PM) program
- Install vapor recovery fuel nozzles

Furthermore, it may be helpful to link your initiatives with other company wide efforts. If the company has a goal to become more sustainable, make sure fleets gets on the agenda.

Greenhouse Gas Emissions

As discussed in previous section, the major impacts of fleet operations include generation of pollutants and greenhouse gas emissions, and the use of carbon-based fuel. It is important to know where you are, to define your carbon footprint. Once you have this baseline, you can set your goals and reduction targets. Keep in mind that your targets may at some point be driven by regulation, such as AB32 or local regulations.

Please turn to Page 12 to view San Francisco Department of the Environment's Fuel Tracker & Carbon Calculator for commercial fleets.

FLEET CARBON CALCULATOR

This toolkit includes a fleet carbon calculator to help you easily track your fleet's annual fuel usage and the GHG emissions that result from that use.
www.sfenvironment.org/our_programs/topics.html?ssi=7&ti=17

Sample Targets

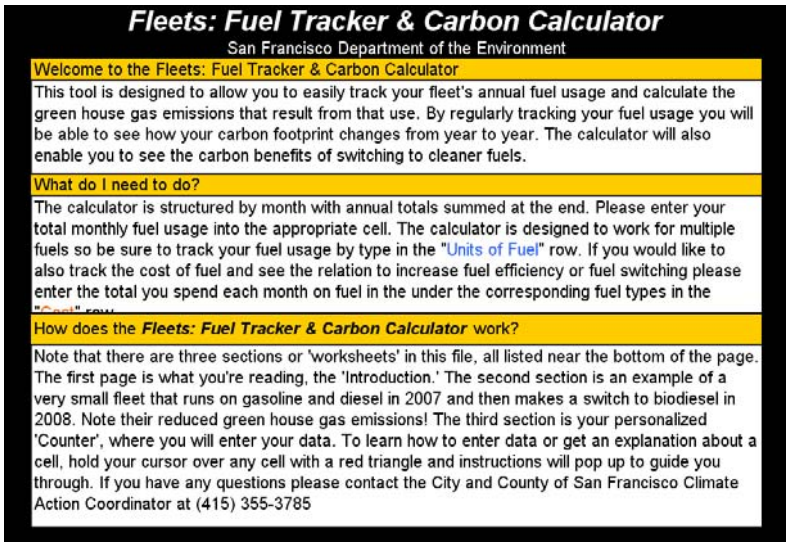
- Incorporate 20% use of B20 biodiesel by March 2007 and 100% use of B20 biodiesel by end of 2007 (City of San Francisco)
- Reduce GHG emissions by 50% from current levels and 20% from 1990 levels (San Francisco Taxi Commission)
- Reduce GHG emissions by 18% by 2012 (State Farm Insurance)
- Replace 10 percent of the fleet's overall diesel consumption with biodiesel
- Develop and implement an optimal vehicle maintenance plan within 18 months

Laing O'Rourke conducted an analysis of their 1700 vehicle fleet including data on the age profile, mileage, fuel costs, and carbon emissions. The results of fleet changes led to a savings of up to 10% on fuel costs.

FUEL TRACKER & CARBON CALCULATOR

The San Francisco Department of the Environment has designed a Fuel Tracker & Carbon Calculator for commercial fleets. It is available on the internet at: www.sfenvironment.org/our_programs/topics.html?ssi=7&ti=17. Scroll down the webpage to view the fleet carbon calculator.

The Calculator is an Excel-based worksheet and very easy to use. The instructions are on the fist tab:



Fleets: Fuel Tracker & Carbon Calculator

San Francisco Department of the Environment

Welcome to the Fleets: Fuel Tracker & Carbon Calculator

This tool is designed to allow you to easily track your fleet's annual fuel usage and calculate the green house gas emissions that result from that use. By regularly tracking your fuel usage you will be able to see how your carbon footprint changes from year to year. The calculator will also enable you to see the carbon benefits of switching to cleaner fuels.

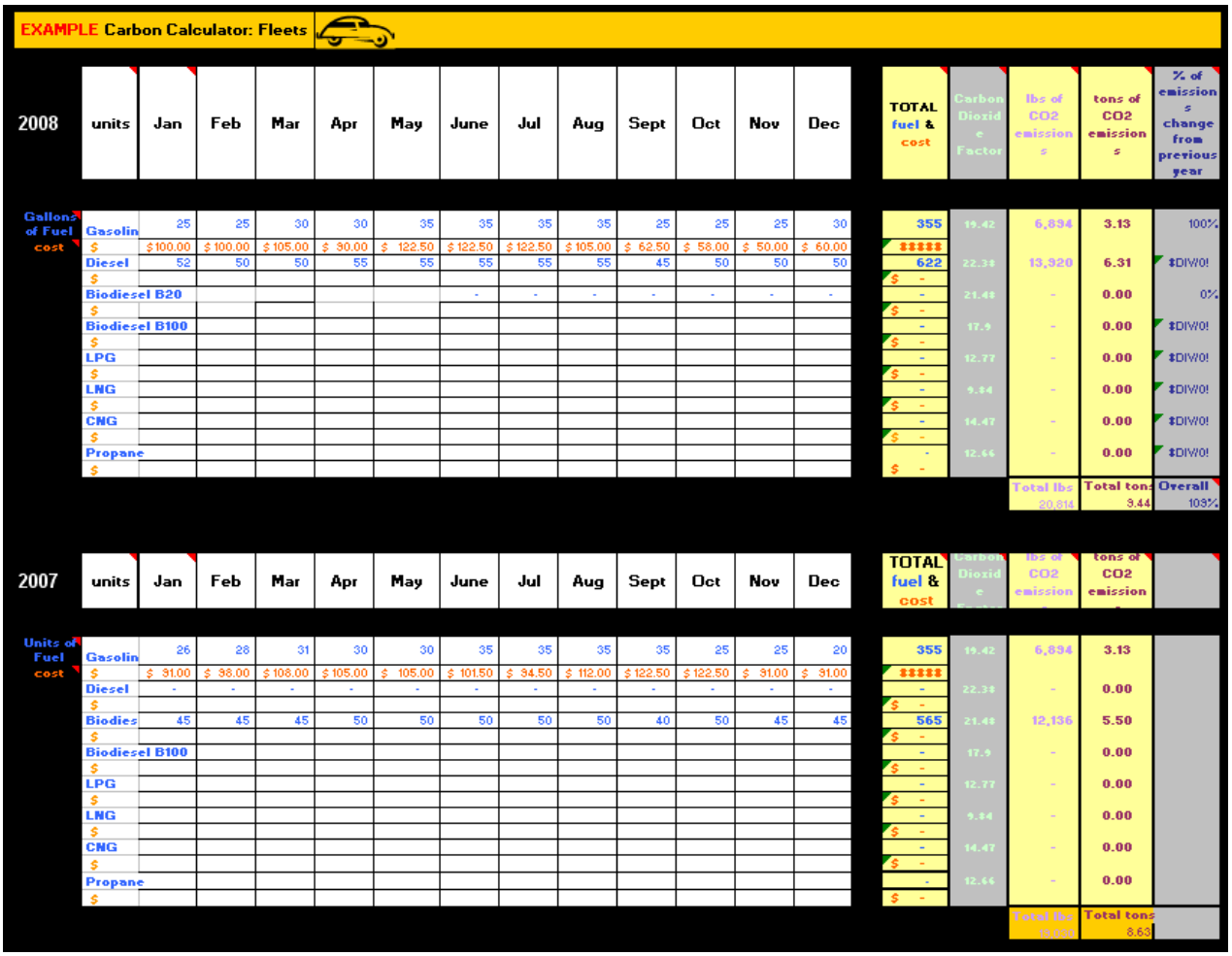
What do I need to do?

The calculator is structured by month with annual totals summed at the end. Please enter your total monthly fuel usage into the appropriate cell. The calculator is designed to work for multiple fuels so be sure to track your fuel usage by type in the "Units of Fuel" row. If you would like to also track the cost of fuel and see the relation to increase fuel efficiency or fuel switching please enter the total you spend each month on fuel in the under the corresponding fuel types in the "Cost" row.

How does the *Fleets: Fuel Tracker & Carbon Calculator* work?

Note that there are three sections or 'worksheets' in this file, all listed near the bottom of the page. The first page is what you're reading, the 'Introduction.' The second section is an example of a very small fleet that runs on gasoline and diesel in 2007 and then makes a switch to biodiesel in 2008. Note their reduced green house gas emissions! The third section is your personalized 'Counter', where you will enter your data. To learn how to enter data or get an explanation about a cell, hold your cursor over any cell with a red triangle and instructions will pop up to guide you through. If you have any questions please contact the City and County of San Francisco Climate Action Coordinator at (415) 355-3785

The second tab of the worksheet displays an example of how the fuel use and cost data is compiled for your analysis; and the third tab is a worksheet ready for your input:



EXAMPLE Carbon Calculator: Fleets

2008	units	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	TOTAL fuel & cost	Carbon Dioxide Factor	lbs of CO2 emissions	tons of CO2 emissions	% of emissions change from previous year
Gallons of Fuel cost	Gasolin	25	25	30	30	35	35	35	35	25	25	25	30	355	19.42	6,894	3.13	100%
	$	$ 100.00	$ 100.00	$ 105.00	$ 90.00	$ 122.50	$ 122.50	$ 122.50	$ 105.00	$ 62.50	$ 58.00	$ 50.00	$ 60.00	$#####				
	Diesel	52	50	50	55	55	55	55	55	45	50	50	50	622	22.38	13,920	6.31	$DIV/0!
	$													$ -				
	Biodiesel B20						-	-	-	-	-	-	-	-	21.48	-	0.00	0%
	$													$ -				
	Biodiesel B100													-	17.9	-	0.00	$DIV/0!
	$													$ -				
	LPG													-	12.77	-	0.00	$DIV/0!
	$													$ -				
	LNG													-	9.84	-	0.00	$DIV/0!
	$													$ -				
	CNG													-	14.47	-	0.00	$DIV/0!
	$													$ -				
	Propane													-	12.66	-	0.00	$DIV/0!
	$													$ -				
																Total lbs 20,814	Total tons 3.44	Overall 103%

2007	units	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	TOTAL fuel & cost	Carbon Dioxide Factor	lbs of CO2 emissions	tons of CO2 emissions	
Units of Fuel cost	Gasolin	26	28	31	30	30	35	35	35	35	25	25	20	355	19.42	6,894	3.13	
	$	$ 31.00	$ 98.00	$ 108.00	$ 105.00	$ 105.00	$ 101.50	$ 34.50	$ 112.00	$ 122.50	$ 122.50	$ 31.00	$ 31.00	$#####				
	Diesel	-	-	-	-	-	-	-	-	-	-	-	-	-	22.38	-	0.00	
	$													$ -				
	Biodies	45	45	45	50	50	50	50	50	40	50	45	45	565	21.48	12,136	5.50	
	$													$ -				
	Biodiesel B100													-	17.9	-	0.00	
	$													$ -				
	LPG													-	12.77	-	0.00	
	$													$ -				
	LNG													-	9.84	-	0.00	
	$													$ -				
	CNG													-	14.47	-	0.00	
	$													$ -				
	Propane													-	12.66	-	0.00	
	$													$ -				
																Total lbs 19,030	Total tons 8.63	

STEP 3: CONSIDER & SELECT BEST MANAGEMENT PRACTICES

Once your baseline data is collected, you are ready to set targets and to identify the best management practices (BMPs) that will move you toward your goals.

We have gathered together a suite of best management practices that you can choose from. These BMPs are not exhaustive but represent the most common and effective practices used by commercial fleets. Here is a summary of the BMPs; each is discussed in more detail in the following sections :

United Parcel Service (UPS) identified a way to save fuel and reduce GHG emissions. UPS saved 3 million gallons of fuel per year by reducing the number of left turns made by its drivers.

BEST MANAGEMENT PRACTICES SUMMARY

BMP #1: OPTIMIZE VEHICLE USE AND FLEET SIZE (page 15)

- Use technology to monitor operations and performance (telematics system)
- Identify potential areas for improvement, contact vendors, and analyze costs/benefits.
- Reduce vehicle miles traveled (VMT)
- Reduce private usage, increase telecommuting/teleconferencing, carpool, use public transport, analyze vehicle use patterns and delivery routes.
- Select the right size vehicle (choosing the optimal size vehicle for the job).
- analyze operational needs, eliminate excess vehicles, and change purchasing and disposal guidelines.

Unilever Canada's team organized its options from three different perspectives: Driver reception, cost, and availability. They decided on the following:

Included: hybrids, fuel efficiency, asset type, engine efficiency, driver training, driver communications, incentive program, replacement policy
Excluded: electric, natural gas, propane
Revisit: diesel, bio-diesel, E85, hydrogen, telematics

BMP #2: MAINTAIN YOUR FLEET AND GREEN YOUR SHOP (page 19)

- Keep accurate vehicle and maintenance files, perform routine inspections, train technicians, and consider maintenance tracking software.
- Green your vehicle maintenance shop – recycle shop waste, use reusable oil filters, keep dry shop; use less toxic alternatives, aqueous parts cleaning and brake washing, oil life extension.

BMP #3: REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL (page 22)

- Reduce vehicle idling by changing driver behavior or by installing devices.
- Develop good driving practice policy and use technology to set maximum speed.
- Use more fuel-efficient vehicles and alternative fuels.

BMP #4: RETROFIT YOUR DIESEL FLEET (EMISSION CONTROL TECHNOLOGY) (page 33)

- Determine which vehicles can be retrofitted at source or through add-on controls.
- Compare target emissions to reductions achieved through retrofitting.
- Conduct cost/benefit analysis, considering incentives and funding sources.

BMP #5: USE OFFSETS TO NEUTRALIZE YOUR FLEET'S GHG EMISSIONS (page 35)

- Assess whether to use offsets to meet emission goals.
- Invest in business or local efficiency or climate mitigation projects.
- Choose a reputable offset provider and offset purchasing strategy.

STEP 3: CONSIDER & SELECT BEST MANAGEMENT PRACTICES

Ranking the Best Management Practices (BMPs)

While reviewing the best management practices on the following pages, evaluate each one against your own fleet operational needs. Based on your analysis of your fleet composition and vehicle usage, you may have seen a trend or pattern; e.g. large proportion of vehicles with poor fuel efficiency, or underutilization of vehicles. Select the strategies that address your goals, and consider how feasible each one is.

The appropriate BMPs for your fleet may be immediately obvious; however, if you are in a quandary about where to start, here is a tool that may help you evaluate the alternatives:

BMP Ranking Worksheet

BMP	*BMP Strategy*	*Significant CO2 Reduction*	*Other Environmental Benefits*	*Cost Effectiveness*	*Other Factors*	*Total Score*

List the BMPs and/or the specific strategies you are considering for implementation and rank them according to a set of criteria that is meaningful to you. In addition to the criteria used in the example above, other considerations may include:

- Cost to implement (capital)
- Cost to implement (labor)
- Return on investment
- Reliability of technology
- Infrastructure (availability of fuel, charging stations)
- Effect on employees
- Public perception

BMP #1 OPTIMIZE VEHICLE USE AND FLEET SIZE

Strategy 1: Use Technology to Monitor Operations

Telematics

Telematics, also known as mobile resource management (MRM) systems is a term for a suite of technological tools that can help fleets improve employee accountability and productivity while decreasing costs. A telematics system allows a fleet manager to monitor a vehicle's performance by collecting data on such variable as:

- Fuel Use
- Speed
- Route Compliance
- Vehicle Use
- Maintenance costs

Telematics systems also offer a variety of uses unrelated to fleet greening, such as reducing accidents and protecting against theft. In terms of fleet greening, telematics systems are typically used to:

- Reduce Speeding
- Increase driver productivity through route optimization
- Reduce or eliminate idling
- Reduce vehicle miles and lifecycle costs
- Reduce maintenance costs

UPS utilizes a telematics system that can provide information on everything from speed, oil pressure, seatbelt use, and even the frequency its vehicles are placed in reverse.

DHL plans to integrate route-planning software into its fleet as part of an expansion of its "GoGreen" program.

Resources

A variety of fleet management companies offer telematics systems. Well known companies include PHH Arval and GE Capital Solutions.

- PHH Arval
  www.phharval.com/fleetServices/phhOnboard.html
- "Turning Fleet Telematics Into Profit"
  www.worktruckonline.com/Channel/Software/Article/Story/2007/06/Turning-Fleet-Telematics-into-Profit.aspx

Automotive Fleets reported in a 2008 study that companies using telematics systems recouped the cost of the technology in one year or less, with a return on investment between 2 to 10 times the cost.

Telematics systems can reduce vehicle GHG emissions and improve fuel efficiency by up to 10%

ACTION PLAN
Use Technology to Monitor Operations

Step 1: Identify your potential areas for improvement (e.g. fuel use, route compliance, etc.).

Step 2: Contact vendors and obtain cost estimates.

Step 3: Conduct cost/benefit analysis to decide whether this investment in technology is appropriate and feasible.

BMP #1 OPTIMIZE VEHICLE USE AND FLEET SIZE

Genentech estimated that employee commuting emissions represented 20% of its total CO2 emissions arising from its facility in South San Francisco. To make a difference, in 2006 Genentech began offering a corporate shuttle program, which carries employees in comfortable buses to and from nearby transit hubs.

Bristol-Myers Squibb has videoconferencing capabilities in 23 countries and encourages the use of meetings via the company intranet.. The company estimates that it has saved several million air kilometers and hundreds of thousands of auto kilometers annually through these practices.

Genentech's gRide program offers a variety of services and cash incentives to encourage employees to carpool, use public transit, and bicycle to work. Genentech offers shower facilities with towel services for bikers. Genentech offers employees $4 per day for each day that they use an alternative mode of commuting. Genentech estimated that its gRide program reduced carbon dioxide emissions from 3.9 metric tons per employee to 3.6 metric tons (an 8.6% decrease).

Strategy 2: Reduce VMTs

There are a wide variety of measures that can be taken to reduce vehicle miles traveled (VMT). These include:

- Reduce private vehicle usage of fleet vehicles. Reducing private vehicle usage may have a significant effect on fuel consumption and will almost certainly improve your fleets performance.
- Increase teleconferencing and telecommuting. Sun Microsystems began an "open work" program in 1995, allowing new hires to decide where they would like to work. In 2006,Sun Microsystems reduced its corporate CO2 emissions by 29,000 tons, because more than half of its employees don't commute daily or put demands on office heating and cooling systems.
- Ensure that staff travel in the same vehicle to meetings and conferences.
- Encourage and provide guidance on the use of public transport.

Google transit is a free service that can help you find and use public transportation throughout the globe.
www.google.com/intl/en/landing/transit/#mdy

511.org is a free service that can help you find and use public transportation throughout the San Francisco Bay Area. It also provides updated traffic information.
www.511.org

- Analyze vehicle use patterns and delivery routes to determine whether VMT reductions can be made.

BMP #1 OPTIMIZE VEHICLE USE AND FLEET SIZE

Strategy 3: Select the Right Size Vehicle

Right sizing your vehicle involves choosing the optimal size vehicle for the job. Smaller fuel efficient vehicles should be used whenever possible while reserving larger less fuel efficient vehicles for when they are truly needed. Keep in mind that vehicles with 4 wheel drives and 6 and 8 cylinder engines are much likelier to increase fuel costs and emissions.

- Chose the most fuel efficient vehicle in its class that meets your organization's size and performance needs.

- Evaluate total lifecycle costs rather than just the purchase cost. Evaluating total lifecycle costs will give you a more complete picture of the purchase and operation costs of the vehicle. Merchants Leasing provides a lifecycle cost calculator that provides a reliable comparison between similar vehicle models: www.fleetleasingnews.com/LifecycleCosts/.

Change Purchasing Guidelines:

If your company has a purchasing policy in place for vehicle acquisition, consider developing a clean fleet purchasing policy that meets the specific needs of the organization. A clean fleet purchasing policy might include criteria such as the following:

- Purchase the top three vehicles for each class in the US Environmental Protection Agency's green vehicle guide.
- Purchase vehicles that achieve 20 percent better miles per gallon for each vehicle class.
- Purchase 10% fuel efficient hybrid vehicles the first year and increase the number purchased by 5% each year

Use Incentives

Control the vehicle choices (based on your analysis of the most cost effective choices). If employees are allowed to select their company vehicles, consider offering a suite of incentives to employees who choose fuel efficient vehicles. Abbott Laboratories achieved a 20% success rate of getting employees to choose fuel-efficient vehicles; they attribute this success to a combination of incentives and education.

Change Disposal Guidelines

Developing disposal guidelines is another important means of improving fleet vehicle utilization. No matter the reason for disposal, it is very important to give consideration to its environmental consequences. Each year in the Bay Area, thousands of cars are scrapped, dismantled, shredded, exported, and abandoned. While much of an automobile is recyclable, many recycling facilities find it cost prohibitive to recycle the whole car. Hence, many of the harmful parts of an automobile, such as mercury switches and lead acid batteries, end up in a landfill as waste.

Webcor has developed a program that offers financial rebates to employees who choose from a list of fuel efficient vehicles

Abbott Laboratories offers incentives such as sunroofs and satellite radios to employees who choose from a list of fuel efficient cars.

By ordinance, the City of San Francisco requires that all new purchases or leases of passenger and light duty vehicles by municipal departments to be clean air vehicles when feasible and appropriate for the fleet application. To this end, The San Francisco Department of the Environment Clean Air Program developed a clean purchasing guide containing a list of approved clean, light duty passenger vehicles and light-duty trucks that are approved for purchase.

BMP #1 OPTIMIZE VEHICLE USE AND FLEET SIZE

The Colorado Department of Transportation calculates the average utilization of each vehicle class to determine the average percent of use based on their asset life cycle. Any vehicle achieving less than 50 percent o f the class average may be removed from the fleet.

Webcor generally replaces vehicles at 36 months but their life cycle strategy is flexible. Webcor takes into account a variety of variables, including time of year, mileage, vehicle type, age, maintenance history, and use.

The San Francisco Taxi Commission has a policy to retire vehicles every 3-4 years or when a vehicle has logged 350,000 miles (whichever comes first).

Resources on Vehicle Disposal:

- Automotive Recyclers Association (ARA)
  www.a-r-a.org/index.asp
- 1877 End of Life Vehicles.com (green vehicle disposal)
  www.1877endoflifevehicles.com/
- CharityCar.US
  www.charitycar.us/

ACTION PLAN
Optimizing Vehicle Use

Step 1: Analyze the operational needs of your fleet, and eliminate excess vehicles. Reducing your fleet size will discourage non-critical trips and encourage alternative forms of travel.

Step 2: Evaluate the manner in which fleet vehicles are used for travel in your city or county, and re-schedule travel efficiently so that multiple tasks can be accomplished with one trip. Also, evaluate whether vehicles are being used for private use and minimize or eliminate this practice through clear policies.

Step 3: Consider purchasing route optimization software to optimize fleet vehicle routes.

Step 4: Evaluate alternative modes of travel available in your area: transit, bicycling, carpooling, company bussing, and even walking. Employees should be provided with transit passes and reimbursed when using transit or bicycles for business reasons..

Step 5: Evaluate whether and when avoiding travel is possible by using email, phone, or video technology to accomplish tasks by telecommuting.

ACTION PLAN
IMPROVE VEHICLE USE

Step 1: Using your fleet inventory, evaluate the appropriateness of the vehicle to the duties it is used for.

Step 2: Analyze the operational needs of your fleet, and eliminate excess vehicles. Reducing your fleet size will discourage non-critical trips and encourage alternative forms of travel.

Step 3: Consider whether and what types of incentives can be offered to employees who choose to purchase fuel efficient personal vehicles.

Step 4: If applicable, build in a clean fleet policy into your company's purchasing policy.

Step 4: Evaluate or develop your company's disposal policy to include clean methods of disposal of vehicles.

BMP #2 MAINTAIN YOUR FLEET AND GREEN YOUR SHOP

Strategy 1: Maintain Fleet for Optimum Performance

A preventative maintenance program is essentially a program in which wear, tear, and change are anticipated and continuous corrective actions are taken to ensure peak efficiency and minimize deterioration. Developing a preventative maintenance program is an essential step in reducing your fleet's emissions. Poorly maintained vehicles can emit as much as ten times the pollution as a properly maintained vehicle.

There are a number of ways in which a poorly maintained vehicle can lead to excess pollution. Leaking fluids can contaminate the water supply and harm vegetation and wildlife. Dirty filters can cause blockages in fuel consumption causing an engine to burn much more fuel to generate the same power. Failure to keep tires inflated can have a significant impact on fuel economy and vehicle performance.

Routine preventative maintenance inspections can help avoid the above mentioned problems and save money for other clean fleet efforts. Some forward thinking fleets have changed the paradigm from preventative maintenance to predictive maintenance.

UPS keeps its delivery fleet in top condition through preventative maintenance. Through rigorous part testing, real- time duty cycle analysis and fleet-wide assessments, the Automotive Study Group developed a detailed matrix of vehicle characteristics, including engine type, vehicle group, miles driven, days of service and manufacturers' recommendations for oil changes and other types of engine service.

Preventative maintenance reduced UPS's oil usage by 330,000 quarts a year, saving the company almost US$3 million annually.

ACTION PLAN
Maintain Fleet for Optimum Performance

Step 1: Determine if your company is keeping accurate vehicle/equipment history and maintenance files. If not, develop a policy to do so and ensure that it is implemented.

Step 2: Evaluate vehicle and maintenance history to identify fleet operation abnormalities such as excessive fuel or oil consumption, excessive tire wear, excessive down time due to unscheduled repairs.

Step 3: Evaluate maintenance ratio for fleet.

Step 3: Consider instituting an oil sampling program, as well as part testing, and other assessments of the fleet to enable fleet operators to avoid costly engine or major component failure and to reduce resources and technician time.

Step 4: Encourage skilled and well-trained technicians by providing on– or off-site initial, refresher and state-of-the art maintenance training .

Step 5: Consider purchasing a maintenance tracking software program to ensure proper vehicle maintenance and, thus, optimize vehicle performance.

Studies have demonstrated that under-inflation by 2 psi can increase fuel consumption by 1%. A dirty air filter can reduce fuel efficiency by 10%.

BMP #2 MAINTAIN YOUR FLEET AND GREEN YOUR SHOP

WHY RECYCLE ANTIFREEZE?

- Recycled antifreeze is less expensive than virgin antifreeze
- Ethylene glycol is produced from natural gas, a non-renewable resource

Based on DTSC case studies of **aqueous parts cleaning systems**, annual savings to companies converting to these systems ranged from $274 to $15,012 annually with payback periods of 3 months to 4.7 years.

Snowmass Mountain Vehicle Maintenance and A-Basin Vehicle Maintenance switched to **refillable spray bottles** from aerosol cans for brake cleaner and saw a savings of $40—$416 annually, with a payback period of 6 months to one year.

The City of Walnut Creek uses **reusable oil filters** in 10 out of 18 police cars. Their payback period for the added expense of the reusable oil filters was less than two years.

Strategy 2: Green Your Vehicle Maintenance Shop

Vehicle maintenance involves handling and managing a wide variety of materials and wastes. Some of these wastes can be toxic to fish, wildlife, and humans when improperly managed. No matter the amount of waste produced, it is to the shops' legal and financial advantage to manage the waste properly and, even more importantly, to prevent pollution.

This section identifies some waste reduction and pollution prevention (P2) options that not only reduce harmful wastes, but can potentially save your company money at the same time. As well, in the Reference section of this Toolkit, you will find a list of links to California Department of Toxic Substances Control (DTSC) guidance documents on how to successfully green your maintenance shop.

RECYCLING SHOP WASTE:

On-site recycling of wastes can help to reduce waste and save you money by reducing the amount of wastes that you have to pay to ship off-site and reducing the amount of materials you will need to buy in the future. Furthermore, refining and reformulating recycled fluids and materials generally consume fewer carbon resources. The following is a list identifying areas where recycling can be implemented:

- Used Oil
- Used Oil Filters
- Batteries
- Metal Residue from Machining
- Liquid Recycling:
    - Coolants from radiators
    - Transmission fluids
    - Brake fluids
    - Refrigerants—when recycled by an EPA-certified technician
    - Solvents
- Use cloth towels, instead of paper towels, and launder with a certified industrial launderer
- Wash vehicles in an area where wastewater can be collected, treated and recycled.
- Use refillable spray bottles

TIP: When sending wastes off-site for recycling, be sure to hire a reputable and state-approved hauler to dispose of your wastes legally.

REUSABLE OIL FILTERS

Reusable oil filters can last up to the life of the vehicle and eliminate the waste stream created by conventional disposable filters! Can reusable oil filters save you money? Yes! According to vendors and facilities using reusable oil filters, the payback period ranges from 1-3 years, depending on fleet size and oil change cycles.

BMP #2 MAINTAIN YOUR FLEET AND GREEN YOUR SHOP

KEEP A DRY SHOP

A dry shop is a shop that has sealed all its floor drains, to ensure that discharges will not enter the storm drains. Put in place practices that will prevent spills from ever reaching the floor.

USE LESS TOXIC ALTERNATIVES

- Replace hazardous chemicals with less toxic alternatives that have equal performance:
  - ⇒ Substitute water-based cleaning solvents for petroleum-based solvent degreasers
- Use aqueous brake washers instead of solvent-based brake cleaners or solvent brake washing units.

AQUEOUS PARTS CLEANING AND AQUEOUS BRAKE WASHING

Mineral spirits is a solvent commonly used for part cleaning because of its ability to quickly dissolve oil, grease, dirt, grime, carbon and heavy lubricants. However, mineral spirits contain volatile organic compounds (VOCs) and are a hazardous waste that can harm the environment and shop employees. Aqueous cleaners are water-based solutions that are typically nonflammable and contain little or no VOCs. These cleaners rely on heat, agitation and soap action to break dirt into smaller particles and perform as well as solvents.

OIL LIFE EXTENSION

Engine oils are typically performed according to mileage or calendar schedules that are based on average data for a wide variety of vehicles. As a result, engine oil changes are often performed more often than necessary. By testing your oil, you can extend engine oil life and lower oil consumption, reduce used oil generation, and decrease operating costs with no risk to your vehicles.

ACTION PLAN
Greening the Vehicle Maintenance Shop

Step 1: Identify products and equipment within your maintenance shop that have the potential to be recycled or replaced with a cleaner alternative to reduce waste and reduce dangers to workers and clients.

Step 2: Develop a green maintenance shop policy to get employees on board with the upcoming changes in products and equipment. Use the DTSC guidance documents found in the Reference section to review case studies and cost analyses in order to identify what changes can be made toward a green maintenance shop.

Step 3: Picking the "low hanging fruit," start with the products or equipment that will be easiest or most economical to recycle or replace to get the ball rolling towards a greener maintenance shop.

Step 4: Continue making changes in products and equipment until you have reached your green goal.

United Parcel Service

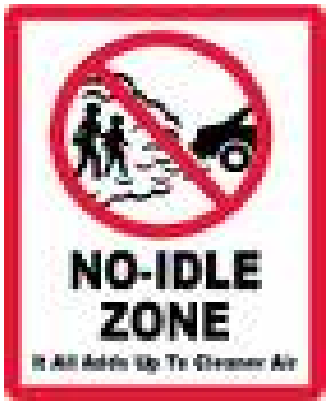
⇒ Recycles used oil or uses it for energy recovery.
⇒ Reuses antifreeze until it is spent, and then it is either recycled or properly disposed of.
⇒ Retreads tires, allowing for their continued use.

How to create an oil life extension program:

1) Establish baseline information, including oil change intervals, operating environment, recent maintenance or repair work, brand and type of oil used, and vehicle age.
2) Conduct engine oil sampling
3) Test oil
4) Evaluate test results

Salem Boys Auto of Tempe, Arizona used sloping pavement, grates, and screens to minimize **oil/water separator** loading. These controls, along with bioremediation, decreased the sludge cleanout frequency and cost by 75%.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL



Molson Canada estimates that it saves over $250,000 annually by controlling idling.

Styline Transportation estimates that it saves over 2,000 gallons of diesel fuel per heavy-duty vehicle annually by limiting idling.

SFO Shuttle Bus Company has a five-minute idling policy when bus drivers are not actively loading or unloading passengers. After the installation of security cameras, driver behavior improved resulting in a reduction of excessive idling.

Vertiable Vegetable is the nation's oldest distributor of certified organic produce and their vehicles are equipped with anti-idling equipment to reduce fuel consumption.

Strategy 1 Reduce Idling

Idling occurs when fleet drivers leave their engines on during times when they are not actually driving. This can occur in many different instances such as during long traffic delays or while waiting to deliver a load of goods. Fleet drivers typically idle out of habit and to operate comfort cooling and heating inside the cab, sleeper compartment devices (microwaves, televisions, refrigerators) or to keep the engine block from freezing during winter. A study by the American Transportation Research Institute identified heating the cab, cooling the cab, and idling in traffic as the three activities most responsible for idling. Increased emissions due to idling have negative impacts for human and environmental health. The extra wear and tear on the vehicle and wasted fuel can lead to increased costs.

Raising Awareness

The potential payback for instituting idle reduction measures can be very significant. a truck's idling can result in the burning of one gallon of fuel per hour.

Idling is a practice that can be managed and reduced. The first step is to educate drivers about the costs of idling to the organization and how unnecessary it is to the carrying out their job. One way to do this is to measure current fuel efficiency and to calculate the potential savings if idle reduction techniques are implemented.

Implementing Change

You can reduce idling by changing driver behavior or by installing devices, such as Auxiliary Power Unit (APU) devices.

Changing Driver Behavior:

There are a number of ways to change driver behavior to reduce idling. The following are some commonly utilized strategies:

1. Create a Shared Vision: Develop a vision for a reduced idling program. This may be incorporated into an anti-idling corporate policy. Obtain driver input and acquiescence to the vision or policy.
2. Educate: Develop a driver awareness and training program centered around idling.
3. Obtain Management Commitment: Management Commitment is an essential part of a successful reduced idling campaign.
4. Develop Targets: Fleet managers can collect data by various vehicle categories and customize targets and guidelines in partnership with drivers.
5. Measure Success: Fuel efficiency data must be shared with drivers and senior management. A successful idling program requires regular communication and feedback

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Idle Reduction Technologies

There are a number of different widely available technologies that can help fleets reduce idling:

1. APUs: Auxiliary Power Units or (APUs): An Auxiliary Power Unit (APU) is a heavy-duty truck idling management solution. An APU allows a driver to power heating and air conditioning systems as well as hotel loads, which include: lighting, TVs, stereos, computers, refrigerators, microwaves, coffee makers, etc without having to idle the engine. The more sophisticated Apo's typically cost $7,000-$9,000 installed.
2. Direct Fired Heaters – These units can be used to heat the sleeper cabin and engine without idling the engine but cannot provide power for air conditioning or other appliances. These units usually cost between $1,000 and $2,000 installed
3. Automatic Engine Start-Stop Controls – These units can sense the temperature in the sleeper cabin and turn on the engine when it is too cold or warm for the driver. These units typically cost around $1,200.
4. Automatic Shut off Devices: These units automatically shut off the vehicle once it has been idling for more than a predetermined amount of time.
5. Truck Stop Electrification: These units available at many highway truck stops allow drivers to plug their trucks into a power source that can power climate control systems and appliances without idling the vehicle.

Resources:

- Puget Sound Clean Air Agency: www.pscleanair.org/programs/dieselsolutions/idling.aspx
- U.S. Department of Energy Efficiency and Renewable Energy Alternative Fuels and Advanced Vehicles Data Center, Idle Reduction, www.afdc.energy.gov/afdc/vehicles/idle_reduction.html
- EPA SmartWay Transport Partnership: www.epa.gov/SmartwayLogistics/transport/what-smartway/idling-reduction.htm

ACTION PLAN
Reduce Vehicle Idling

Step 1: Arrange a trial period measuring fuel-consumption for at least two weeks without anti-idling (before) and two weeks with anti-idling (after). Be sure to record data for the "before" period to help set a benchmark. Be sure to share this information with drivers and senior management.

Step 2: Conduct a vehicle idling calculation to determine how much you could save by idling less and how much CO2 is produced by vehicle idling (see Resources Section for links to idling calculators) and share this information with drivers and senior management.

Step 3: Develop an anti-idling policy and ensure that employees are educated about the purpose and means to achieving the goals set out in the policy.

Step 4: Consider installing idle reduction technologies in your fleet.

California State Regulations

Diesel trucks with a gross vehicle weight rating greater than 10,000 lbs. cannot:

- Idle for more than 5 minutes within California's borders
- Penalties can range from $300 to $10,000 per day

www.arb.ca.gov/msprog/truck-idling/truck-idling.htm

The U.S. Department of Energy's Argonne National Laboratory has created a worksheet to help fleets figure their savings and payback when using idle reduction equipment.

www.transportation.anl.gov/pdfs/TA/361.pdf

The American Transport Research Institute publishes a list of state and county anti-idling regulations, fines, and exemptions.

www.atri-online.org/research/idling/atri_idlingcompendium7_11_08.pdf

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

At 70mph a commercial van uses up to 12% more fuel than at 60mph and up to 15% more fuel than at 50mph.

Speed and hard braking management improve fleet fuel usage by an average of 8 miles per gallon.

The E3 fleet program has created a calculator that can help estimate the financial and environmental costs of unnecessary vehicle idling, based on the type of vehicle and its operating condition. The calculator can also be used to estimate the cost savings and return on investment for idling reduction technologies such as cab heaters and auxiliary power units (APUs).

www.e3fleet.com/mc/page.do?sitePageId=40919&orgId=clcc

Strategy 2 Encourage/Mandate Good Driving Practices

Driving behavior is a typically overlooked factor in cleaning a fleet. The driving habits of an individual driver can greatly impact the amount of emissions produced and fuel used. Those drivers that speed and brake hard should be retrained and incentivized to adjust their driving habits

The Natural Resources Canada Office of Energy Efficiency has a number of driver training tools available on its website that are designed to train drivers to, among other things, idle less, speed less, and brake softer.

www.oee.nrcan.gc.ca/transportation/business/driver-educators.cfm?attr=16

The following are some practices to consider when developing a driver training program:

- Smooth, steady state driving economizes fuel. Avoid erratic acceleration and heavy braking.
- Perform regular tune-ups to the vehicle manufacturer's maintenance guidelines
- Vehicles do not need to be "warmed-up" before moving. The gas tank should not be filled past the first click of the nozzle. Failure to do so can result in fuel expansion and increased pollution.
- Remove any unnecessary weight
- Keep the windows closed as much as possible to maximize aerodynamics and increase fuel efficiency
- Mandate decreased idling (see the section on idling)
- Avoid short trips
- Do not rev the engine
- Avoid high speeds

Benefits:
Fleets that improve fuel economy by a least 5 percent through driver training and monitoring programs can save more than $1,200 per truck each year in fuel costs and eliminate 8 metric tons of carbon dioxide emissions per truck each year.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

If Driver Training is not Enough, Use Technology

Driver training is often not enough to ensure good driving practices, especially when it comes to speeding. Thankfully, a number of companies have devised a technological fix to ensure that drivers cannot speed beyond company set guidelines.

Speed governors are devices that set the maximum speed of a vehicle's engine to a predetermined mile per hour limit. They can be installed by the manufacturer of the vehicle or retrofitted to fit cars, light-duty, medium-duty, and heavy-duty trucks. There are a variety of reasons that organizations choose to install speed governors. The primary reason is safety; however, increasingly, fleet managers and other are citing emissions reductions as a reason for installing the devices.

ACTION PLAN
Encourage/Mandate Good Driving Practices

Step 1: Develop a good driving practice policy and ensure that employees are educated about the purpose and means to achieving the goals set out in the policy.

Step 2: Consider installing speed governors on vehicles to improve gas mileage, decrease emissions, and improve safety.

Con-way Freight, one of the nation's leading less-than-truckload (LTL) freight transportation companies, turned back the speed governors on its 8,400-tractor fleet in an effort to improve fuel conservation and reduce carbon emissions. The company has set the governors on its truck engines to run at a maximum of 62 miles per hour, down three miles per hour from previous settings. The effort is anticipated to reduce diesel consumption from its over-the-road tractor fleet by 3.2 million gallons per year. In addition, it expects a reduction of 72 million pounds of carbon emissions from the environment.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

The Hybrid Center publishes a calculator that can help identify the benefits of a hybrid given individual driving patterns.

www.go.ucsusa.org/hybridcenter/buyersguide.cfm

The Department of Energy has devised a flexible fuel vehicle calculator that allows you to estimate the cost of driving a flex fueled vehicle, gallons of gasoline saved if using E85, and pounds of greenhouse gases saved by using E85.

www.afdc.energy.gov/afdc/

CARB introduced its Environmental Performance Label for all new passenger vehicles sold in the state. The unique label provides consumers with both a smog score and global warming score for model year 2009 passenger vehicles

www.driveclean.ca.gov/

Environmental Defense publishes a "Hybrid Trucks Financial Incentives Guide" that is designed to help fleet managers locate federal, state, and local funds for the purchase of hybrid vehicles.

www.edf.org/page.cfm?

Strategy 3 Use More Fuel Efficient Vehicles and Alternative Fuels

Fuel Efficient Vehicles

When selecting a vehicle, try to choose the cleanest and most efficient vehicle that will meet your fleet's needs. In most cases, the small to medium sized category of vehicles have the lowest operating cost and are overall least expensive when life cycle costs are considered.

Flexible Fuel Vehicles (FFVs)

Flex Fueled Vehicles are those that are designed to run on gasoline or a mixture of up to 85% ethanol and 15% gasoline (E85). Flexible fuel engines are capable of burning any proportion of the resulting blend in the combustion chamber as fuel injection and spark timing are adjusted automatically according to the blend detected by electronic sensors. In 2007, there were 6 million FFVs on United States roads, up from 5 million in 2006.

FFVs are very similar to conventional vehicles, except for a few fuel engine and system modifications. Because ethanol contains almost 34% less energy per unit volume than gasoline. FFVs powered by ethanol get fewer miles per gallon than gasoline.

Resources on Flexible Fueled Vehicles:

- U.S. Department of Energy Alternative Fuels Data Center: www.afdc.energy.gov/afdc/vehicles/flexible_fuel.html
- Flex Fueled Vehicles - FuelEconomy.gov www.fueleconomy.gov/feg/flextech.shtml

Fuel Efficient Hybrids

Hybrid electric vehicles (HEVs) are becoming an increasingly popular choice of alternative fueled vehicle. Hybrids use a combination of gasoline and electricity for power. Hybrid vehicles generally get more miles per gallon than conventional fueled vehicles and hence require lower fuel costs. Hybrids are widely available as light duty vehicles but less so as medium and heavy duty vehicles. However, in the near future, it is expected that medium and heavy duty diesel electric hybrids and hydraulic hybrids will be much more commonplace.

A number of considerations should be made before purchasing hybrids as an integral part of a fleet. Firstly, there is cost. Hybrids generally come with a higher purchase price than conventional fueled vehicles. Whether that cost is worth it in terms of fuel savings and environmental benefits over the life of the vehicle depends on a number of factors. Another consideration is maintenance. While most routine maintenance matters are similar to those of a conventional vehicle, more complicated matters generally require an experienced mechanic familiar with hybrids.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Resources on Hybrids

- U.S. Department of Energy Alternative Fuels Data Center: www.afdc.energy.gov/afdc/vehicles/hybrid_electric.html
- National Renewable Energy Laboratory-Hybrid electric and fuel cell vehicles: www.nrel.gov/vehiclesandfuels/hev/
- Plug in America: www.pluginamerica.org/
- Environmental Defense publishes a list of market ready medium and heavy duty hybrid trucks: www.m.edf.org/page.cfm?tagID=13394
- The U.S. Department of Energy publishes a list of market ready heavy duty hybrid trucks: www.afdc.energy.gov/afdc/progs/vehicles_search.php
- All about hybrid cars publishes a hybrid vehicle comparison chart: www.allabouthybridcars.com/comparison-chart.htm

ACTION PLAN
Use More Fuel Efficient Vehicles

Step 1: Determine which "clean" vehicles are best suited to your various fleet needs and institute a policy for future vehicle purchases.

Step 2: Re-evaluate your clean vehicle purchasing policy often as your company's needs may change, as well as the clean vehicle market. Analyze current gas prices, vehicle prices, plug-in options in your area, fuel options, etc. to get a full view of the options available.

AT&T has purchased and placed into use 65 electric hybrid Original Equipment Manufacturer (OEM) vehicles, comprised of Ford Escapes and Toyota Prius', and 15 electric hybrid conversion work trucks. AT&T anticipates that the electric hybrid conversion work trucks will offer a 38% improvement in fuel economy compared with similar gasoline fueled versions and will reduce GHG emissions by 28%.

SC Johnson plans to add hybrids to its sales fleet through 2011. The company's states goal is to reach a 40 mpg fleet average.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Alternative Fuels

Switching to alternative and cleaner fuels represents another method to cleaning your fleet. Fuels such as biodiesel, ethanol, natural gas, and propane to different degrees can reduce negative environmental and public health impacts. Some vehicles can be manufactured to run on alternative fuels while others must be converted.

All alternative fuel vehicle conversions must meet U.S. Environmental Protection Agency and California Air Resource Board standards. Certain vehicle conversions may also be subject to Federal Motor Vehicle Safety Standards and or other National Highway Traffic Safety Administration regulations. For more information on alternative fuel conversions, please see the U.S. Department of Energy website on conversions available at:

www.afdc.energy.gov/afdc/vehicles/conversions.html

Biodiesel:

Biodiesel is a biodegradable fuel made from vegetable oils, waste cooking oil, animal fats, or tall oil. The most abundant sources of biodiesel come from oil crops such as rapeseed, palm, or soybean. Biodiesel can be utilized as a straight fuel or blended with petroleum diesel in various percentages. The use of biodiesel requires no engine modifications, except for the replacement of rubber seals in older vehicles. B20, a blend of 20% biodiesel and 80% petroleum has been successfully and extensively used by Safeway Stores and the City and County of San Francisco.

Biodiesel is increasingly a commonplace source of fuel for fleets in the Bay Area and beyond. The fuel has been tested by major fleets that have driven thousands of miles in all weather conditions with a variety of different types of vehicles. While the environmental benefits are somewhat controversial, biodiesel is widely believed to be lower in most GHGs than traditional petroleum fuels.

Benefits:

- Lower GHG gases
- Increased life-cycle of fuel pumps and injectors
- Improved corporate image
- Improved employee morale and retention

The U.S. Department of Energy Alternative Fuels Data Center publishes an "alternative fueling station locator" that allows you to search for alternative fueling stations by fuel in California and nationwide.

www.afdc.energy.gov/afdc/stations/find_station.php

In early 2007, Norcal Waste Systems converted its entire fleet of 310 diesel-fueled trash trucks to B20 biodiesel with an expected CO_2 reduction of 5,400 tons, a 21% decrease from 2006. Nearly all of these vehicles are also equipped with Cleaire Longview diesel emission control systems that reduce particle and nitrogen oxides emissions.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Availability of Biodiesel in the Bay Area:
Biodiesel is widely available in the Bay Area. The San Francisco BioFuels Cooperative lists a number of places where Biodiesel can be purchased in the San Francisco Bay Area and regularly updates the prices at each location.

Resources:

- The San Francisco BioFuels Cooperative: www.sfbiofuels.org/
- The National Biodiesel Board: www.biodiesel.org/
- San Francisco Greasecycle Program: www.sfgreasecycle.org/

San Francisco Grease Cycle Program

The San Francisco Public Utilities Commission Grease Cycle Program collects waste vegetable oil for free from local restaurants and recycles it into biodiesel. The biodiesel will be sold to the biofuel industry and used to power the San Francisco municipal fleet.

www.sfgreasecycle.org/

Safeway Stores is powering its entire nationwide trucking fleet on biodiesel from soy or canola oil. Safeway estimates its biodiesel blend will cut its GHG emissions by 75 million pounds each year, the equivalent of taking 7,500 cars off the road.

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Natural gas is becoming increasingly available to fleets in the San Francisco Bay Area and nationwide. For a complete list of alternative fuel stations in the Bay Area and beyond, please see:

www.afdc.energy.gov/afdc/locator/stations/

AT&T has placed 25 CNG vans into service. These vans are anticipated to reduce GHG emissions by 30% when compared to gasoline powered vans.

Pacific Gas and Electric (PG&E) operates five heavy-duty LNG trucks. The trucks reduce GHG emissions by 15-20% over equivalent diesel engines.

Southern Counties Express Green Fleets will soon integrate 71 LNG heavy duty trucks into its current fleet of 150 trucks. The trucks will operate in the Los Angeles and Long Beach Port Harbor drayage environment. The trucks will be fueled from a publicly available LNG fueling station.

Natural Gas

Natural gas is an alternative fuel primarily composed of methane. There are two types of natural gas currently used by fleets: 1) Compressed Natural Gas (CNG) is made from compressing natural gas to less than 1% of its volume at standard atmospheric pressure. 2) Liquid Natural Gas (LNG) is produced by cooling natural gas to a liquid state. CNG can be used to power light, medium, and heavy duty vehicles, although its use in California is primarily for light-duty fleets. LNG has been primarily used to power heavy duty vehicle fleets. Natural gas, whether LNG or CNG, has been referred to as the "cleanest burning fuel" for its lower PM, NOX, and GHG emissions. Natural gas can reduce tailpipe emissions of different emissions by 35-97%, with a GHG reducing potential similar to that of corn based ethanol.

Vehicles that are powered by natural gas are known as Natural Gas Vehicles (NGVs). While widely used in many countries of the world, especially Brazil and Argentina, natural gas has had limited market penetration in the United States. According to the International Association of Natural Gas Vehicles, as of May 2006, the United States had approximately 130,000 vehicles (mainly buses) on its roads. Contrast that number with Argentina, which had almost 1,500,000 vehicles in operation. While most natural gas vehicles must be equipped by the manufacturer to run on natural gas, some vehicle models can be converted to CNG.

The U.S. Department of Energy has an online calculator available on its website that can help you evaluate the costs of a natural gas vehicle given various State incentives. It is available at:

www.afdc.energy.gov/afdc/progs/ngv_cost2.php?819

Natural Gas Resources:

- International Association of Natural Gas Vehicles (IANGV) www.iangv.org/
- Natural Gas Vehicles for America www.ngvc.org/about_us/index.html
- California Natural Gas Vehicle Partnership www.cngvp.org/
- U.S. Department of Energy's Alternative Fuels Data Center www.afdc.energy.gov/afdc/fuels/natural_gas.html

The U.S. Department of Energy publishes a list of California laws and incentives that can help you finance the purchase of a natural gas vehicle. It is available at:

www.afdc.energy.gov/afdc/progs/ind_state_laws.php/CA/NG

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

Propane

Propane, otherwise known as liquefied natural gas (LNG) is an alternative fuel generated as a byproduct of natural gas processing or refined from petroleum. Propane can be used as a fuel source in cars and light, medium, and heavy-duty vehicles. Light duty vehicles must be converted to propane while medium and heavy-duty vehicles are available from manufacturers. There are estimated to be 270,000 on-road propane vehicles operating in the United States. Propane can result in lower pollutant emissions and GHG in comparison to gasoline and diesel. Propane can be as much as $1.00-$2.00/gallon cheaper than gasoline and diesel. Propane will get slightly fewer miles per gallon than gasoline and generally causes less wear on engines than petroleum based fuels. There are almost 200 publicly accessible fueling stations in California that can dispense propane suitable for transportation purposes.

Propane is widely available throughout the San Francisco Bay Area. The U.S. Department of Energy Alternative Fuels Data Center publishes an "alternative fueling station locator" that allows you to search for propane fueling stations in California and nationwide.

www.afdc.energy.gov/afdc/stations/find_station.php

Cost/Benefit Analysis

The Washington based Propane Education and Research Council has an online calculator available on its website that can help you determine the benefits of switching from regular fueled vehicles to propane and the costs over a ten year period.

www.propanecouncil.org/fleetcalculator/

Resources:

- U.S. Department of Energy Alternative Fuels Data Center: www.afdc.energy.gov/afdc/vehicles/propane.html
- Propane Education and Research Council (PERC): www.propanecouncil.org/

UPS operates close to 750 propane powered vehicles throughout Canada and Mexico. Older models were converted from diesel and gasoline while newer models were manufactured to run on propane.

The Los Angeles times has over 300 delivery vehicles running on propane.

The San Francisco municipal fleet has 35 vehicles powered by propane.

Federal tax credits of up to $.50/gallon may be available for the use of propane. The U.S. Department of Energy Alternative Fuels Data Center publishes a list of incentives available for the use of propane.

www.afdc.energy.gov/afdc/progs/ind_state_laws.php/CA/LPG

BMP #3 REDUCE CONSUMPTION OF PETROLEUM-BASED FUEL

ACTION PLAN
Use Alternative Fuels

Step 1: Determine which, if any, vehicles in your fleet can run on alternative fuels with minor and/or major modifications.

Step 2: Conduct a cost/benefit analysis of switching viable vehicles to alternative fuels. Be sure to consider tax credits and incentives.

Step 3: Consider adding future purchases of vehicles that run on alternative fuels to your vehicle purchasing policy.

BMP #4 RETROFIT YOUR DIESEL FLEET

Diesel retrofits generally involve the integration of an exhaust after-treatment device to a diesel vehicle. Diesel emissions are controlled in two ways: at the source, through ongoing modification to the engine design, and/or through the use of add-on controls that treat the diesel exhaust: Diesel retrofit technologies have the potential to reduce pollution from the existing diesel engine fleet by up to 90% for particulate matter, up to 85% for nitrogen oxides, and up to 90% for volatile organic compounds.

Emission Control Technologies for Automobiles, SUVs, and Light-Duty Trucks includes:

- Catalytic Converters
- Particulate Filters
- Oxygen, NOx, and Temperature Sensors
- Thermal Management Strategies
- Engine/Fuel Management Strategies
- Evaporative Emission Control Technologies
- Enhanced Combustion Technologies
- Plasma-Based Technologies

Emission Control Technologies for Heavy-Duty Trucks and Buses includes:

- Catalytic Converters
- Particulate Filters
- Oxygen, NO_X, and Temperature Sensors
- Thermal Management Strategies
- Engine/Fuel Management Strategies
- Enhanced Combustion Technologies
- Plasma-Based Technologies
- Crankcase Emission Control Technologies

Both EPA and CARB have verification programs for emission control technologies and EPA has certified engines as engine replacements.

Retrofit Financial Resources

Funding for voluntary retrofit programs is available through federal, state, and local governments:

1) The Carl Moyer Memorial Air Quality Standards Program (Carl Moyer Program) is a voluntary program that provides incentive funding to reduce emissions from diesel-powered vehicles and equipment. The Carl Moyer Program is administered in the Bay Area by the California Air Resources Board with support from BAAQMD.
   www.baaqmd.gov/pln/grants_and_incentives/carl_moyer/index.htm

2) The Goods Movement Emissions Reduction Program (GMERP) allocates 40% of the monies available to replace, retrofit, or repower trucks in order to reduce NO_X and PM emissions.
   www.arb.ca.gov/bonds/gmbond/gmbond.htm

3) The federal Diesel Emissions Reduction Act (DERA) provides funding for programs that reduce diesel emissions.
   www.dieselforum.org/news-center/pdfs/DERA-A-Smart-Clean-AirInvestment.pdf.

The California Air Resources Board Statewide Truck and Bus Rule will require truck owners to install diesel exhaust filters on their rigs beginning January 1, 2011, with nearly all vehicles upgraded by 2014. Owners must replace engines older than the 2010 model year according to a staggered implementation schedule that extends from 2012 to 2022.

The California Air Resource Board Heavy Duty Vehicle Greenhouse Gas Emission Reduction measure requires long-haul truckers to install fuel efficient tires and aerodynamic devices on their trailers that lower GHG emissions and improve fuel economy.

BMP #4 RETROFIT YOUR DIESEL FLEET

Marin Airporter outfitted 5 diesel buses with Cleaire Longview filters to reduce emissions and is looking for filters that will fit their other buses. Currently they are looking at hydrogen fuel additives that increase fuel MPG and reduce their carbon footprint.

Ralphs grocery stores retrofitted fifteen of its diesel trucks with two types of passive regenerated catalyzed diesel particulate filters. Nine of the ten retrofitted trucks have operated 140,000-180,000 miles without having the filters cleaned.

Whole Foods Markets retrofitted 20 existing trailers with belly fairings to reduce aerodynamic drag and improve fuel economy. It projects a savings of 4% on total fuel costs by implementing this retrofit.

SFO Shuttle Bus Company, servicing passengers at San Francisco International Airport, has 12 diesel buses that fuel with B20 biodiesel and have Cleaire Longview Particulate Filters installed as well as 11 buses that operate on compressed natural gas (CNG.)

Other Retrofit Resources

- Diesel Technology Forum Retrofit Tool kit
  www.dieselforum.org/policy/retrofit/tool-kit
- United States Protection Agency Verified Retrofit Technologies List
  www.epa.gov/otaq/retrofit/verif-list.htm
- Manufacturers of Emissions Control Association
  www.meca.org

The EPA diesel emissions quantifier can help you calculate the cost effectiveness and environmental impact of diesel retrofit technologies.

www.cfpub.epa.gov/quantifier/view/info.cfm.

"The U.S. EPA's National Mobil Inventory Model can be used to calculate the emission reductions achieved through a real or potential retrofit of highway vehicles"

www.epa.gov/otaq/nmim.htm

ACTION PLAN
Retrofit Your Diesel Fleet

Step 1: Determine which, if any, vehicles in your fleet can be retrofitted and to what extent. Be sure to consider which vehicles will require retrofitting.

Step 2: Compare your target emissions to calculations of the emission reductions that can be achieved through retrofitting.

Step 2: Conduct a cost/benefit analysis of retrofitting vehicles. Be sure to consider incentives and funding sources.

BMP #5 USE CARBON OFFSETS

After applying your best efforts, you may find yourself still unable to reach your emissions targets. If so, purchasing carbon offsets may be the way to get to your GHG target. A carbon offset is created when an organization in the United States or abroad performs some activity that reduces carbon that would not otherwise have been reduced. That organization then offers these carbon offsets on the market to help organizations such as yours that find it impossible or simply cost prohibitive to obtain greater reductions internally.

Most companies purchasing offsets are doing so to neutralize their emissions overall. Fleet emissions are just one component of their overall emissions portfolio. However, there are a number of companies, in which fleet emissions make up a large part of their overall impact. A number of these companies are either purchasing offsets or pledging to do so.

Controversy Over Offsets

The use of offsets as a means of reducing carbon is widely accepted but also controversial. Companies that have purchased offsets have been accused of "buying their way out of responsibility" or "offsetting guilt." These opponents of offsets argue that actual reductions of CO2 are the only way to truly reduce GHG emissions and the method of calculating offsets is still uncertain. Offsets can still be considered a viable and effective way to reduce CO2 emissions; only use offsets after your organization has eliminated internal emission reductions to the maximum extent possible.

Choosing a Reputable, Local Offset Provider

The market for carbon offsets has grown dramatically over the last several years. In 2007, the voluntary carbon market (market for carbon offsets) tripled in value from 91 million to 331 million dollars. This growth has led to a number of offset products being offered with different motivations and various levels of expertise. As a result, various voluntary (unregulated) standards and certifications have been devised to evaluate the providers and their offsets. Many companies now offer verified emissions reductions (VERs), which are offsets that are certified to meet some certification or standard. Fleet managers should use the same discerning eye in buying offsets as they do with any other product.

The Carbon Concierge has developed a Carbon Offset Provider Evaluation Matrix (COPEM) to help businesses evaluate carbon offset providers. They rank offset providers based on 8 criteria.

www.carbonconcierge.com/learn

A number of standards have been developed to assure purchasers of the integrity of the offsets they are buying. Each standard has a slightly different focus and none have become the industry standard. The most common standards in the United States are:

- ⇒ The Gold Standard
- ⇒ The Climate, Community, and Biodiversity Standard
- ⇒ The VER+ standard
- ⇒ Voluntary Carbon Standard (VCS)
- ⇒ California Climate Action Registry Guidelines

BMP #5 USE CARBON OFFSETS

Bandago van rentals purchases carbon offsets from DriveNeutral. It expects to offset 823 metric tons of CO2, the equivalent of taking 240 passenger vehicles off the road for a year. DriveNeutral is a nonprofit that offers third party verified reductions obtained through projects that improve energy efficiency, renewable energy, agricultural sequestration, and reforestation projects.

Infinity Property and Casualty Company offset a portion of its fuel emissions by investing in a project that reduces methane emissions from California dairy farmers.

Develop an Offset Purchasing Strategy

Formulate a customized plan to determine the kind and amount of offsets to purchase. The following are some points to consider:

- What emissions do you seek to offset (e.g., the whole fleet, only heavy-duty vehicles?
- What kind of budget are you working with? Inexpensive offsets may not bring the kind of credibility to the process that you would like to have. Buying expensive offsets does not alleviate the need to investigate the offset provider.
- Have you considered whether offsets will be used to someday comply with a mandatory cap and trade system?
- Have you considered whether other departments in your organization have purchased offsets to neutralize their emissions?
- Do you plan to communicate your choice to purchase offsets to your various internal and external stakeholders? If so, what message do you want to convey?
- How will you pay for the offsets?
- Consider investing in business for local efficiency or climate mitigation projects.
- Do you want to invest in offset projects in a particular geographic area or industrial sector?

Resources:

- Carbon Concierge - www.carbonconcierge.com/learn
- Offset Quality Initiative: www.offsetqualityinitiative.org/
- California Climate Action Registry: www.climateregistry.org/
- The Climate Registry - www.theclimateregistry.org/
- Chicago Climate Exchange - www.chicagoclimateexchange.com/
- Carbon Offset Providers Coalition - www.carbonoffsetproviders.org/
- Green-e (third party certifier) - www.green-e.org

Well-known Carbon Offset Providers

(For a complete list of providers, see www.carboncatalog.org)

- LiveNeutral: www.liveneutral.org/what_we_do
- Terrapass: www.terrapass.com/
- Carbon Fund: www.carbonfund.org/
- EcoSecurities: www.ecosecurities.com/Home/default.aspx

ACTION PLAN
Use Carbon Offsets

Step 1: Assess whether your company desires to use carbon offsets to meet emission goals.

Step 2: Develop an offset purchasing strategy.

Step 3: Carefully choose a local, reliable offset provider.

STEP 4: IMPLEMENT AND MONITOR PROGRESS

Once you have developed and evaluated a suite of BMP options that will help you reach your objectives and targets, it is time to develop a plan to implement those strategies and to have systems in place to monitor progress.

Develop Your Clean Fleets Action Plan

Most of the toolkit thus far has been dedicated to the foundation of proper planning. A key component of this planning effort was to define what your organization intends to achieve in cleaning its fleet. Now that this has been accomplished, it is essential to develop an action plan specific to your organization.

Your action plan should be linked directly to your objectives and targets - in other words, the plan should shed light on how the organization will translate its objectives, targets, and commitments into concrete actions so that the organization's goals are accomplished.

To ensure that this happens, your action plan should include:

- The roles and responsibilities involved in achieving the goal
- The means for accomplishing the objectives and targets
- The time frame and deadlines for accomplishing those objectives and targets

Consider developing the action plan in conjunction with other organizational strategic plans and processes. For example, if your organization is planning on changing its purchasing requirements, it might be a good time to discuss purchasing greener products for the fleet department.

Check to Make Sure Resources are available

Make sure to identify the resources you need early in the process and submit a budget to the responsible office. This toolkit provides a number of resources to help identify grants, loans, and other available pots of money.

Monitoring Progress

Finally, it is important is to recognize that your clean fleets action plan must be dynamic and not static. It has to change as employees come and go, priorities change, costs of fuel change, new technologies hit the market etc. The action plan should be monitored and periodically updated to reflect changes in requirements, costs, and policies.

Keys to Developing A Good Action Plan

- Try to build on plans and programs you already have in effect at the organization
- Get employees involved early in developing and implementing the program
- Clearly state the expectations & responsibilities of the action plan to chosen team members and other staff
- Re-evaluate your action plan whenever contemplating major changes to your operation
- Make the action plan as simple as possible
- Look for hidden cost savings opportunities

RESOURCES

OTHER CLEAN FLEET TOOLKITS/GUIDES	
-Puget Sound Green Fleets Guide	www.psgreenfleets.org
-Municipal Green Fleet Management in Ontario, Fleet Challenge Ontario	www.fleetchallenge.ca/pdfnew/FCOntario_MuncipalBestPracticesManual2008.pdf
-Environmental Defense Fund: "Greening Fleets A Road-map to Lower Costs and Cleaner Corporate Fleets"	www.edf.org/greenfleet
AB32, THE GLOBAL WARMING SOLUTIONS ACT OF 2006 & THE BIG RIG RULES	
-The California Air Resources Board	www.arb.ca.gov/cc/cc.htm
-Statewide Truck and Bus Rule & AB 32 Truck Efficiency Rules	www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm
-Statewide Truck and Bus Rule Regulations Calculator	www.arb.ca.gov/msprog/onrdiesel/calculators.htm
STEP 1. BUILD AWARENESS	
-City of San Jose Green Fleets Policy (Identifying a Green Fleets Team)	www.sanjoseca.gov/esd/PDFs/GreenFleetPolicy_091707.pdf
STEP 2. IDENTIFY IMPACTS	
-SF Environment Fleet Carbon Calculator	www.sfenvironment.org/our_programs/topics.html?ti=17
-Department of Energy Petroleum Reduction Tool	www.afdc.energy.gov/afdc/prep/index.php
STEP 3. CONSIDER & CHOOSE BEST MANAGEMENT PRACTICES	
-US Department of Energy Petroleum Reduction Tool	www.afdc.energy.gov/afdc/prep/index.php
-Prioritization Tool	www.mindtools.com
BMP #1 Optimize Vehicle Use & Fleet Size	
-Lifecycle Cost Calculator	www.fleetleasingnews.com/LifecycleCosts/
-Automotive Recyclers Association	www.a-r-a.org/index.asp
-1877 End of Life Vehicles.com (green vehicle disposal)	www.1877endoflifevehicles.com
-Google Transit	www.google.com/intl/en/landing/transit/#mdy
BMP #2 Maintain Your Fleet and Green Your Shop	
-DTSC Vehicle Service and Repair Program Fact Sheets	www.dtsc.ca.gov/PollutionPrevention/VSR/VSR_Fact_Sheets.cfm
-EPA Region 9 Auto Repair and Fleet Maintenance Pollu-tion Prevention	www.epa.gov/region09/waste/p2/autofleet/index.html
-Green Truck	www.greentruck.com/

RESOURCES

BMP #3 Reduce Consumption of Petroleum- Based Fuel	
Minimize Idling	
-U.S. Department of Energy Argonne National Laboratory	www.transportation.anl.gov/pdfs/TA/361.pdf
-E3 Fleet Program Idling CostCalculator	www.e3fleet.com/mc/page.do?sitePageId=40919&orgId=clcc
-U.S. Department of Energy Alternative Fuels Data Center	www.afdc.energy.gov/afdc/vehicles/idle_reduction.html
Encourage/Mandate Good Driving Practices	
-Natural Resources Canada Office of Energy Efficiency	www.oee.nrcan.gc.ca/transportation/business/driver-educators.cfm?attr=16
***Use More Fuel Efficient Vehicles and Alternative* Fuels**	
-U.S. Department of Energy Alternative Fuels Data Center	www.afdc.energy.gov/afdc/vehicles/flexible_fuel.html
-Fuel Economy.gov	www.fueleconomy.gov/feg/flextech.shtml
-U.S. Department of Energy Flexible Fuel Vehicles Calculator	www.afdc.energy.gov/afdc/progs/cost_anal.php?0/E85/
Clean Vehicle Guides	
-California Air Resources Board 'Drive Clean' website	www.driveclean.ca.gov
-U.S. Department of Energy Hybrid Vehicle Cost Calculator	www.afdc.energy.gov/afdc/hev_calculator/fleet.php.
Hybrid Vehicles	
-U.S. Department of Energy Alternative Fuels Data Center (Hybrids)	www.afdc.energy.gov/afdc/vehicles/hybrid_electric.html
-Environmental Defense (medium and heavy-duty hybrid trucks)	www.m.edf.org/page.cfm?tagID=13394
-The U.S. Department of Energy (medium and heavy-duty hybrid trucks)	www.afdc.energy.gov/afdc/progs/vehicles_search.php
-All About Hybrid Cars.com (light-duty hybrid vehicles)	www.allabouthybridcars.com/comparison-chart.htm
-Environmental Defense Hybrid Trucks Financial Incentives Guide	www.edf.org/page.cfm?tagID=1124
-Hybrid Center.org calculator	www.go.ucsusa.org/hybridcenter/buyersguide.cfm
Biodiesel	
-San Francisco BioFuels Cooperative	www.sfbiofuels.org
-The National Biodiesel Board	www.biodiesel.org
-San Francisco Biodiesel Program	www.sfenvironment.org/our_sfenvironment/news.html?topic=details&ni=253

RESOURCES

Natural Gas	
-U.S. Department of Energy Natural Gas Calculator	www.afdc.energy.gov/afdc/progs/ngv_cost2.php?819
-Clean Energy Natural Gas Fueling Stations	www.cleanenergyfuels.com/stations/stations.html
-International Association of Natural Gas Vehicles	www.iangv.org/
-Natural Gas Vehicles for America	www.ngvc.org/about_us/index.html
-California Natural Gas Vehicle Partnership	www.cngvp.org/
Propane	
-US Department of Energy Propane Incentives	www.afdc.energy.gov/afdc/progs/ind_state_laws.php/CA/LPG
-Propane Energy and Research Council Propane Calculator	www.propanecouncil.org/fleetcalculator/
-US Department of Energy Alternative Fuels Data Center	www.afdc.energy.gov/afdc/vehicles/propane.html
-Propane Education and Research Council	www.propanecouncil.org/
BMP #4 Retrofit Your Diesel Fleet	
-US Department of Energy National Mobil Inventory Model	www.epa.gov/otaq/nmim.htm
-Diesel Technology Forum Retrofit Toolkit	www.dieselforum.org/policy/retrofit/tool-kit
-California Air Resources Board Verified Diesel Emission Control Retrofit Technologies List	www.arb.ca.gov/DIESEL/VERDEV/VERDEV.HTM
-Manufacturers of Emissions Control Association	www.meca.org
-EPA Diesel Emissions Quantifier	www.cfpub.epa.gov/quantifier/view/info.cfm.
BMP #5 Use Carbon Offsets	
- The Carbon Concierge	www.carbonconcierge.com/learn
-Offset Quality Initiative	www.offsetqualityinitiative.org/
-California Climate Action Registry	www.climateregistry.org
-The Climate Registry	www.theclimateregistry.org/
-Carbon Catalog	www.carboncatalog.org/
STEP 4: IMPLEMENT AND MONITOR PROGRESS	
City of Toronto Green Fleets Action Plan	www.toronto.ca/fleet/gfp_actions.htm

ORGANIZATIONAL PROFILES

The following profiles are descriptions of the organizations featured throughout this toolkit that have implemented successful clean fleet efforts:

1) **Abbott Laboratories** - Abbott Laboratories is a global healthcare company headquartered in Illinois with over 68,000 employees worldwide and 2007 sales of over 25.9 billion dollars. Its corporate fleet travels an average of 25,000 miles per year and represents 12% of its emissions. Abbott Labs has developed a number of incentives for its employees to choose more fuel efficient vehicles.
www.abbott.com/global/url/content/en_US/40.60.20.20:20/general_content/General_Content_00292.htm

2) **Aramark** - Aramark provides uniform rental and leasing services to its customers, including laundering services. The company has installed GPS devices on its services fleet and also uses route optimization software to create a schedule to reduce delivery mileage and hours spent traveling, increase delivery capacity, reduce fuel consumption through right sizing of vehicles in its overall effort to improve the environmental footprint of its operations.
www.aramark.com

3) **AT&T** - AT&T is the leading provider of IP based communications services to business and a top U.S. provider of wireless, high speed internet access, Wi-Fi, and local and long distance telephone services. AT&T has integrated a fleet of 105 alternative fueled vehicles
www.att.com/gen/corporate-citizenship?pid=8506

4) **Bandago** - Bandago is a San Francisco based company that specializes in van rentals for the music industry. Bandago neutralizes all of its CO2 emissions by purchasing offsets through DriveNeutral.
www.bandago.com/carbon.php

5) **Bristol Myers Squibb** - Bristol Myers Squibb is a global biopharmaceutical company. Bristol Myers Squibb reduces its transportation related impacts through teleconferencing, holding meetings via intranet, and encouraging car and van pools and public transportation for its employees.
www.bms.com/static/ehs/report/data/sust06.pdf

6) **City of Fresno, California** - The City of Fresno, California has developed a strategy for Achieving Sustainability, which includes using cleaner fuels in its vehicle and bus fleet
http://www.fresno.gov/NR/rdonlyres/4316C47B-49C5-417A-899C-2A6C7EB4DAD3/0/GreenStrategy.pdf

7) **City of Sydney, Australia** - In 2008, the City of Sydney, Australia became the first carbon neutral government in Australia through energy efficiency, renewable energy and offsets.
www.cityofsydney.nsw.gov.au/environment/GreenhouseAndAirQuality/WhattheCityisdoing/CarbonNeutral.asp

8) **City and County of San Francisco:** The City and County of San Francisco is a national leader in alternative fuel and clean vehicle technologies and in developing cutting edge clean fleet and climate change policies. Powered by compressed natural gas, electricity, B20 biodiesel, plug-in hybrid demonstration and hybrid-electric vehicle technologies, the City's clean air vehicles emit fewer pollutants and contribute to national energy security by reducing oil consumption. San Francisco Environment's Clean Air Transportation Program oversees these efforts.

San Francisco City Fleet:
www.sfenvironment.org/our_programs/topics.html?ssi=7&ti=17

San Francisco International Airports Fleet:
www.flysfo.com/web/export/sites/default/dowload/about/news/pressres/fact-sheet/pdf/Commitment_to_Clean_Air_Vehicles.pdf

SF Municipal Transportation Agency Fleet:
www.sfmta.com/cms/mfleet/indxfleet.htm

9) **Colorado Department of Transportation** - The Colorado Department of Transportation is responsible for a 9,161 mile highway system that handles over 28.6 billion vehicle miles traveled. The Department's fleet is used to maintain the various highways in Colorado.
www.dot.state.co.us/

10) **Conway Freight** - Conway Freight is a 5 billion dollar freight transportation and logistics services company headquartered in San Mateo, CA. Conway Freight has greened its fleet by imposing stringent truck idling restrictions, installing speed governors, and participating in the US EPA SmartWay Program and other such organizations.
www.con-way.com/en/about_con_way/corporate_social_responsibility/

11) **DHL** - DHL is the global package delivery and logistics subsidiary of Deutsche Post World Net, one of the world's leading logistics groups. As part of its GoGreen Program, Deutsche Post World Net has integrated a number of alternative fuels and vehicles into its fleet. In 2007, 888 of its vehicles were powered by alternative fuels.
www.dpwn.de/sustainabilityreport/2008/environment/respondingtoclimatechange/vehiclesandaircraft.html

12) **Forward Air** - Forward Air Corporation is a leading provider of time-definite surface transportation and related logistics services to the North American air freight and expedite less than truck load market.
www.forwardair.com/

13) **Franciscan Lines** - Franciscan Lines, A Coach America Company is the largest tour and charter bus operator and the second largest motor coach service provider in the US. The company has reduced fuel usage by reducing vehicle speed from 74 mph to 68 mph, uses a B5 biodiesel blend to fuel it's fleet and has installed particulate filters on 17 vehicles.
www.coachamerica.com

14) **Genentech** - Genentech is a global biotechnology company. Genentech reduces its transportation related impacts through teleconferencing and providing shuttle buses for its employees.
http://www.gene.com/gene/about/environmental/index.html

15) **Laing O'Rourke plc** - Laing O'Rourke plc is the largest privately held construction firm in the United Kingdom. Laing O'Rourke's 4,500 vehicle fleet is becoming greener through improved mileage and fuel data gathering, incentives for drivers to use greener cars, and offering alternative transportation to its employees via shuttle bus.
www.laingorourke.com/

16) **The Los Angeles Times** - The Los Angeles Times is a major news publisher in Southern California. It has over 300 delivery trucks operating on propane.
www.propanecouncil.org/fleettemplate.aspx?id=3322

17) **Marin Airporter**—Marin Airporter offers scheduled bus service between Marin County and the SF International Airport.
www.marinairporter.com

18) **Molson Canada** - Molson is Canada's oldest brewery. Molson has reduced its GHG emissions through a strict 5 minute idling policy.
www.molson.com/

19) **Office Depot** - Office Depot is one of the world's largest sellers of office products. It reduces its fleet's environmental footprint through, among other things, anti-idle policies, the use of fuel-efficient sprinter vans, and quantifying use. Office Depot is an active partner in the US EPA Smartway Transport Partnership
www.community.officedepot.com/docs/corporate-citizenship-report-2008.pdf

20) **Oregon State Fleet Administration** - The Oregon State Fleet Administration regulates and oversees almost all vehicles used by the State of Oregon government. The Oregon State Fleet Administration has implemented an EMS.
www.oregon.gov/DAS/SSD/FLEET/ems.shtml

21) **PG&E** - Pacific Gas and Electric Company is one of the largest combination electric and natural gas utilities in the United States. It is headquartered in San Francisco and is a subsidiary of the PG&E Corporation. PG&E operates the largest natural gas fleet in the nation, is a leader in hybrid plug-in technology, was the first utility to demonstrate vehicle to grid technology, and is testing a new diesel-electric hybrid service truck.
www.pge.com/about/environment/pge/fleets/index.shtml

22) **Ralphs Grocery** - Ralphs Grocery is a supermarket chain operated by the Kroger Co. Ralphs fleet consists of 1,350 trucks and 7,100 trailers. Ralphs has instituted a number of clean fleet measures, including the use of speed governors, automatic idle shut off devices, reducing vehicle weight, and using special vehicles that allow the company to combine loads and shorten trips.
www.ralphs.com/healthy_living/green_living/Pages/fuel_conservation.aspx

23) **Safeway Stores** - Safeway operates 1,1775 ???? stores across the United States and Canada. Safeway is the first major retailer in the United States to convert its entire fleet of 1,000 trucks to a biodiesel blend. Safeway is also a member of the US EPA SmartWay Transport Partnership.
http://www.safeway.com/ifl/grocery/Environment-Sustainability

24) **SC Johnson** - SC Johnson is a family company that manufacturers a variety of different cleaning products and insecticides worldwide. SC Johnson is greening its fleet by adding hybrid vehicles to its sales fleet each year through 2011.
www.scjohnson.com/Environment/news_detail.asp?art_id=322

25) **SFO Shuttle Bus Company** - SFO Shuttle Bus Company provides with bus service at San Francisco International Airport, has 23 buses, including 12 diesel buses using biodiesel fuel and 11 buses using compressed natural gas.
www.sfoshuttle.net

26) **Sonoma County Water Agency** - The Sonoma County Water Agency provides flood protection and water supply services to portions of Sonoma and Marin County in California. The Agency has been adding alternative fueled vehicles to its fleet, including ZAP electric vehicles.
www.scwa.ca.gov/

27) **Southern Counties Express** - Southern Counties Express is a provider of transportation, distribution, and warehousing services for all types and volumes of freight throughout Southern California. Southern Counties Express operates a division known as “The Green Fleet.” The Green Fleet will operate a fleet of 71 trucks powered by liquid natural gas.
www.thegreenfleet.com/company.html

28) **Staples** - Staples is the world’s largest office products company. Staples has implemented such clean fleet initiatives as installing speed governors, joining the EPA SmartWay Program, and testing a hybrid/diesel electric delivery truck.
www.staples.com/sbd/img/content/soul/pdf/2007_staples_soul_report.pdf

29) **State Farm Insurance** - State Farm Insurance is a major provider of insurance and other financial products. The company has been replacing vehicles with bio-diesel, hybrid electric, and flex-fueled vehicles.
www.statefarm.com/about/media/media_archive/sf_green.asp

30) **Styline Transportation** - Styline Transportation is an Indiana based provider of trucking and logistics services. Styline Transportation has equipped 70% of its fleet with APUs and plans to equip 100% of the fleet in 2009. Styline is also a US EPA SmartWay Transport partner.
www.stylinetransport.com/about.html

31) **Sun Microsystems** - Sun Microsystems is a major computer hardware and software developer headquartered in Santa Clara, CA. Sun Microsystems seeks to reduce its CO2 emissions by such means as offering employees subsidies to use public transportation, reducing the number of required face to face meetings, and operating employee shuttle buses.

www.sun.com/aboutsun/csr/report2008/eco/so_travel.jsp

32) **Unilever Canada** - Unilever is a worldwide manufacturer of nutrition, hygiene, and personal care products. Unilever Canada has instituted a number of clean fleet measures, including offering drivers incentives to choose fuel efficient and hybrid vehicles, providing driver education, and measuring fuel consumption and other baseline data for its sales fleet.

33) **UPS** - UPS is the world's largest package delivery companies and a leading provider of specialized transportation and logistics services. UPS has integrated a wide variety of clean fleet initiatives into its business, including a sophisticated automotive information system that prompts fleet staff when a vehicle requires preventative maintenance, the carrying out of regular preventative maintenance inspections, and the implementation of fuel conservation programs. At the end of 2007, UPS operated 25,900 low emission vehicles worldwide. The company operates the largest private alternative-fuel fleet in the transportation sector, including electric, hybrid electric, compressed natural gas, LNG, and propane vehicles.

www.sustainability.ups.com/

34) **Veritable Vegetable** - Veritable Vegetable is the nation's oldest distributor of certified organic produce with a fleet of 41 units including electric and hybrid electric passenger vehicles as well as the first-ever alternative diesel/CNG Class B truck in Northern California, which has been in service since 1999. The company also has nine diesel tractors equipped with particulate filters, six sleeper cabs equipped with auxiliary power units for heating and air conditioning and is adding three hybrid refrigeration units to its fleet of thirteen refrigerated trailers. All power units are equipped with anti-idling devices. The fleet is serviced in green maintenance shops and drivers use fuel-saving progressive shifting techniques. Veritable Vegetable has integrated a number of clean fleet initiatives including subsidizing public transportation costs for employees and actively promoting biking to work.

www.veritablevegetable.com

35) **Webcor** - Webcor is the largest California commercial builder headquartered in San Mateo, California with over 400 employees. Its fleet consists of approximately 182 light duty vehicles. Webcor has integrated a number of clean fleet initiatives including the development of a system to better track fuel consumption, vehicles miles traveled, and other data, piloting a rightsizing program to provide $1,000 subsidies to employees who lease smaller vehicle for work, subsidizing public transportation costs for employees, managing a carpooling system, dedicating Toyota Prius hybrids for employee use, offering incentives for employees to buy their own hybrids, and actively promoting biking to work through sponsorship and certifying their offices Coalition as "bicycle-friendly workplaces."through the Silicon Valley Bike Coalition.

www.webcor.com/green_transport.html

36) **Whole Foods** - Whole Foods is a recognized leader in the sale of natural and organic foods and products through its chain of 270 stores in North America and United Kingdom. Whole Foods is gradually converting its truck fleet to biodiesel fuels, and has installed aerodynamic aprons and a system to allow the trucks to load and unload without idling.

www.wholefoodsmarket.com/values/green-action.php

37) **Yellow Cab Co-op** - Yellow Cab Co-op, an independent, locally owned company, is the largest taxicab provider in San Francisco. More than half of its vehicle fleet of roughly 500 taxis is comprised of hybrid electric and compressed natural gas taxis.

www.yellowcabsf.com

ABOUT US

*The Sustainable Earth Initiative (SEI): SEI is a nonprofit organization that offers low-cost services for nonprofit organizations as well as academic and government institutions: These services include but are not limited to:

Pollution prevention and waste reduction practices
Development of Environmental Management Systems (EMS)
Development of Compliance Management Systems (CMS)
Development of Sustainability Policies and Programs

For more information, please visit www.sustainableearthinitiative.org/

*The San Francisco Department of the Environment (SF Environment) Clean Air Transportation Program: San Francisco Environment's mission is to improve, enhance, and preserve the environment, and to promote San Francisco's long-term wellbeing by developing innovative, practical and wide-ranging environmental programs in recycling, toxics reduction, environmental justice, energy efficiency, clean vehicles, alternative fuels, commute alternatives, and urban forest.

For more information, please visit www.sfenvironment.org/our_programs/topics.html?ti=17

*The Bay Area Air Quality Management District (BAAQMD): BAAQMD is committed to achieving clean air to protect the public's health and the environment in the San Francisco Bay Region.

For more information, please visit www.baaqmd.gov

*Beyond Compliance LLC: Beyond Compliance LLC is a multi-service organization that provides specialized environmental and sustainability consulting for business and government. Beyond Compliance is dedicated to bridging the crevasse between standard EH&S compliance and principles of corporate, environmental, and social responsibility. Beyond Compliance committed significant resources and expertise to help in completing this toolkit

For more information, please visit www.beyondcompliance.net

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