Everybody's fleet and situation is different. The important part is to get the most out of whatever it is you have. Use all the information you can glean to work *smarter*, not harder.

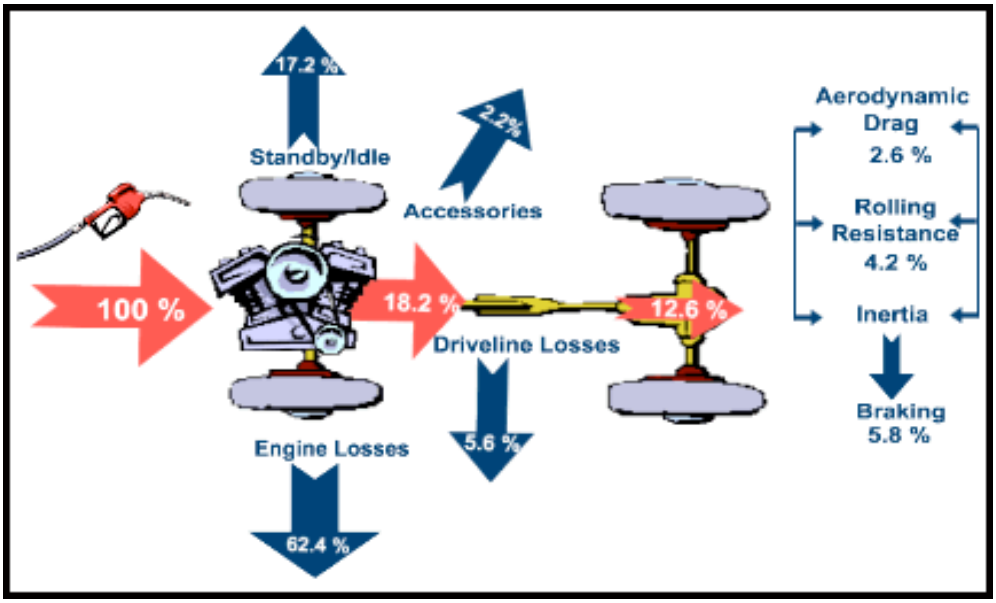
If you have post-seminar questions, the answers are probably at WorldSweeper.com. If you need help finding them, feel free to call Ranger Kidwell-Ross, editor, at (866) 635-2205, between 9 and 4, Pacific Time.

Reducing Fuel Consumption

Train on proper driving habits and techniques

Much available fuel savings starts with your employees; how well they've been trained. By training your operators in good driving procedures, from speed to routing, you'll see a difference.

Only about 15% of the energy from the fuel you put in your tank gets used to move your car down the road or run useful accessories, such as the heater and air conditioning. The rest of the energy is lost to engine and driveline inefficiencies and idling. That's the reason why the potential to improve fuel efficiency with advanced technologies is seen to be enormous.



• **Prior to purchase, compare fuel economy of various chassis** online at www.fueleconomy.gov/. You will also find a host of other useful information at that website.

• **Curtail aggressive driving.** Speeding and rapid acceleration and braking cut mileage up to 33 percent at highway speeds and by 5 percent in town. Nix jack-rabbit starts in favor of slow acceleration from a dead stop.

• **Obey the speed limit.** Speeding cuts fuel economy 7 to 23 percent, as gas mileage decreases rapidly above 60 mph. Driving faster than 60 mph is like paying more than the posted amount for each gallon of gas.

• **Consolidate trips and errands whenever possible.** Traveling at less congested times also will save fuel.

• **If available, use your vehicle's overdrive gear** when appropriate to reduce engine speed. Use of overdrive gear saves fuel as it reduces engine wear.

• **Use cruise control to help cut fuel consumption** by maintaining a steady speed during highway driving. Cruise controls use less fuel than someone driving manually.

• **Eliminate idle time and time idling.** Track how much time your operators are putting onto the auxiliary engine. One contractor reported his operators were putting as many as 9 hours per shift onto their auxiliary engine. This meant they were it them run all night, i.e., even while they were blowing, changing out liners, etc. The same was true with the truck engine. Train your operators not to leave the truck running for the purpose of a/c or heat. Instead, they need to dress more appropriately.

• **Set up your routes so as to avoid left turns at intersections.** This reduces idling while waiting to turn, which in turn lowers fuel consumption. In order to shave money off its annual $2 billion fuel bill, UPS has developed software that maps out driver routes to avoid left turns.

• **Cross-train your operators on routes.** Then, track the differences in time taken on client properties, as well as items like fuel usage. If there are significant differences, find out why they’re occurring.

Maintenance Procedures

According to the National Institute of Automotive Service Excellence, a vehicle that receives proper service and maintenance lasts 50% longer.

• **Keeping your vehicle properly tuned up** will improve mileage by about 4 percent. Replacing a faulty oxygen sensor can improve mileage by as much as 40 percent.

• **Keep air filters clean** to improve mileage by up to 10 percent. Replacing clogged or dirty air filters also keeps impurities from damaging the inside of your engine.

• **Keep tires properly inflated** to improve gas mileage by about 3.3 percent and improve tire safety and longevity. Every 1 psi drop in pressure of all four tires can lower gas mileage by 0.4 percent. Having the wheels out of alignment also reduces mileage.

• **Do not buy "aggressive" tread tires** if you do not need them. When you replace your tires, discuss treads that improve mileage with your tire dealer.

• **Do not use mid-grade or premium grade gasoline unless specified for your vehicle.** Older vehicles may require these grades to avoid "knock" which reduces power and may damage the engine. Most newer vehicles knock only when they need a tuneup.

• **Do not overfill the tank.** You not only pay for any fuel that spills, but it becomes air pollution as it evaporates.

• **Periodically determine the mileage on all vehicles in your fleet.** Declining mileage can be an early indicator of mechanical problems or a need for servicing. Keep a chart on each vehicle with the fuel mileage over time. This will make it easier to spot when a vehicle needs a tuneup, new oxygen sensor, etc.

• **Use the manufacturer's recommended grade of motor oil** to decrease fuel consumption by another 1 to 2 percent. Look for "Energy Conserving" on the API performance symbol to ensure friction-reducing additives are included.

• **Put good preventive maintenance programs into place**, including developing a procedure for your mechanics. One contractor does oil changes and other preventive lubricant changes as much as 50% more often than recommended by manufacturers due to the use in sweeping industry. They have found their equipment lasts longer enough to cover the additional preventive maintenance costs.

• **Fuel filter replacement** is an example of an item that is much more expensive to fix when it needs it than prior to that time.

• **Communicate with drivers daily to see what may need fixing.** Use of a form is recommended, since there is added accountability. This saves money in a variety of areas other than fuel usage: towing, payroll costs on operators unable to sweep, added cost and inconvenience of having to fix sweepers in the night and more.

• More information, including a free car care guide, detailed information about a variety of specific vehicles, and smart driving and fuel saving tips are at the website: www.carcare.org.

Routing and Tracking

• **Check all your routes to find out which are most efficient.** Then, figure out why they are or are not. Must know your costs for everything, so you know how to compare different possibilities for change.

• **Use GPS systems to track your productivity.** You may find that your operators are not going to and from their stops in the most efficient manner. You can also track driving/idling time/stopping and other habits.

Through the years there have been a number of stories from contractors that have bought out an unprofitable competitor – then reduced the numbers of sweepers sometimes in half to service the same customers by making the routes more efficient.

Purchasing Fuel

• **Ideally, buy or fill up your vehicle in the early morning** when the ground temperature is still cold. Remember that all service stations have their storage tanks buried below ground. The colder the ground, the more dense the fuel will be. When it gets warmer, liquid fuel expands, so buying in the afternoon or in the early evening your gallon is not exactly a gallon.

The specific gravity and the temperature of gasoline, diesel, ethanol and other petroleum products plays an important role. Service stations do not have temperature compensation at the pumps, so in warmer weather you don't get exactly what the pump's readout shows.

• **When you're filling up do not squeeze the trigger of the nozzle to a fast mode.** If you look, you will see that the trigger has three stages: low, middle and high. In slow mode you are minimizing the vapors created while pumping. All hoses at the pump have a vapor return. If you are pumping on the fast rate, some other liquid that goes to your tank becomes vapor. Those vapors are being sucked up and back into the underground storage tank so you're getting less fuel for your money.

• **Fill up when your gas tank is HALF FULL/HALF EMPTY.** This is one of the most important tips, especially important for gasoline-powered vehicles. The reason is that the more gas you have in your tank, the less air is occupying its empty space. Gasoline, especially, evaporates faster than you can imagine, even from a supposedly sealed gas tank.

• **Do not fuel up when a tanker is pumping your fuel of choice into the station's storage tank.** When a fuel truck is re-filling a gas station's storage tank, the fuel is likely being stirred up as the fuel is being delivered. This increases the possibility that you might pick up some of the dirt that normally settles on the bottom.

• **Get your own fuel tank; then, bid the filling of it between multiple vendors.** One contractor uses three different vendors, each of whom bids on the cost per gallon at which they'll fill the company's fuel tank. This saves, on average, several cents per gallon.

• **Big enough for your own tanker?** One large contractor says they own their own tanker trailer and can procure their own fuel at wholesale prices.

Develop Accurate Cost Calculations

Some contractors insist that dual-engine sweepers, when operated properly and depending upon volume and density of debris to be cleaned up, use less fuel than single-engine sweepers. Here's the argument:

• When you engage a single engine's sweeping system, you tell the hydraulic system to come up to a preset fan speed and hold there. As the chassis rpm's increase, so do the fan rpm's. If you want to go 15 mph your fan has some connection with that speed.

For example, a Victory Mark I (single engine) provides 2000 fan rpms when the truck is going 15 mph. If you need only 1500 rpms of fan speed but you want to move forward at 15 mph you have to raise your fan speed along with the chassis rpm. A twin-engine operates these both independently. Fan speed 1200 rpm at 15 mph? No problem!!

Unfortunately this leaves the decision to the driver – who may decide instead of stopping to clean out the screens he'll simply give it more throttle to compensate for less performance. Fan speed 2800 rpm (with the performance of 1200 rpm's with a clean screen) at 2 mph? OOOPS! Still no problem for the untrained driver who doesn't have to supply fuel.

• Time needed to clean the lot is a huge factor when calculating fuel consumption, too. A single-engine 'paper chaser' sweeper being used in heavier applications will often take much more time than fuel percentage saved. And, you'll also be paying the operator(s) and associated overhead. Apply the performance to the job. More performance may save time on the lot as well as fuel.

• Keep track of all the options available for sweepers and other, peripheral equipment. For example, consider whether you'd save by going with a gas chassis and diesel auxiliary. Gasoline costs less per gallon than diesel. You also have a clean separation of fuel supply sources for accurate excise tax reimbursement.

• Several contractors report significant fuel savings via mixing tow-behind sweepers in with their twin- and single-engine fleet. This goes back to matching performance to the application. See following example:

Think outside the box, like in this 'real world' example:

Contractor had a small route that required 10/hours per week of sweeping, all in a town located 45 minutes away from his office. Following are the calculations for the twin-engine sweeper he historically used, versus switching to a Victory T-500, and a new local employee, for the route.

Standard, Chassis-Mounted Sweeper

Travel Fuel/Month
2 gallons/hour x 1.5/hours travel/day x 20 days = 60 gallons/week @ $3/gallon = **$180/month**

Sweeping Fuel/Month
2 gallons/hour x 40 hours/month = 80 gallons/month @ $3/gallon = **$240/month**

Est. Employee Cost = 1.5 hours travel/day x 20 = 30 hours travel/month
+ 40 hrs sweeping/mo.
70 x $15 = **$1050/mo.**

Sweeper Payment Portion (at $1200/month)
Usage in Example: 40 hours sweeping/month + 30 hours transit/month = 70 hours use/month = 44% of total usage = **$528 is % payment cost**

Total Cost of Chassis Sweeper Operated 40 hours; travel 30 hours is $1998/month. ($180 + $240 + $1050 + $528)

Amount of 'Sweeping Time' Still Available:
160 total hours available – 70 hours used = 90 hours still available (**56% still available**)
****

Tow-behind Sweeper

Employee Cost (includes fuel) = 44 hours/month at $17/hour, which includes using his truck and he buys fuel = $187 (cost per wk.) x 4 = $748

Cost of sweeping 44 hours (assumes 10% slower sweeping)
(including all $220/month sweeper payment cost) = $220 + $748 = **$968**

Amount of 'Sweeping Time' Still Available:
160 total hours available – 44 hours used = 116 hours still available (**73% still available**)

Cost savings using above assumptions and example:
$1998 - $968 = **$1030 savings/month**

Related Creative, Cost-Saving Examples:

• **Purchase a one-grade-lighter trash bag, and shop cost with suppliers.** Previously, the company purchased ten or twelve cases at a time for about $39 per case of 250.

By going lighter and agreeing with the new supplier to purchase by the skid quantity, price reduced by $17 per 250, for a total of $22 per 250. Only downside is more $$ out per each purchase.

• **Buy oil and air filters for the sweepers from NAPA, not OEM.** This saves almost 50% over the dealer prices, even in quantity. Check NAPSA's discount price over local prices.

• **Request and receive dumpsters from property managers who have large quantities of trash bags being changed.** Since trash bags are what fill up the sweeper hopper, you may then be able to sweep most of the night without dumping.

There is now less sweeper down time, less trash in your own dumpsters (which equals lower number of dumpsters pulls), all of which equals less expense per month.

• **Providing vehicles to sales personnel and others that were previously using their own vehicles.** The mileage reimbursements on the company owned vehicles have saved us money. Another plus is we can control the first impression when they meet a client.

• **Have all two-cycle engine fuel mixed correctly, and by the same person.** Having your two-cycle oil and gasoline mixed by someone trained on the topic will provide a significantly longer life to your two-cycle engines.

• **Pre-mix all antifreeze prior to putting it into radiators.** Never put half water and half antifreeze into a radiator and expect it to mix itself. This can create glycol hotspots that, in the extreme, can cause engine failure.

• **Ideas from seminar:** _____

• _____

• _____

Fuel Surcharges
Price to Include Fuel Increase and Other Projections

• At year's end, re-calculate all your expense figures. In terms of fuel, estimate a new cost per hour that includes fuel at the highest you think it will get the next summer. The following example uses a 'highest estimate' of $4/gallon.

When sending out bids or price sheets to your new prospects/customers, tell them what the cost per sweep or hour is. Include a paragraph stating that there may be a fuel recovery charge of up to 5% if the price of fuel goes above $4.00 per gallon, or whatever you set it at.

When fuel goes above that price, add the charge. Then – and this is extremely important –take off the surcharge as soon as the price drops below the figure you set. When fuel raises dramatically, put an escalating percentage onto your proposals.

For example, between $4 - $4.25 your surcharge would be 5%; from $4.26 - $4.50 it would be 6%; and so on. Chances are that you'll rarely have complaints. When fuel takes a big jump you may have more companies questioning your surcharge, but most will be okay with it since the surcharge, as a result of your planning, will not be like the add-ons from companies that will have to institute a 15 - 20% surcharge to stay even. You'll find that most all customers will pay it.

Use a fuel surcharge as a way to keep even, not to be a profit center. Make sure your customers understand that.

• Use your knowledge gained here to question vendors that want to charge high fuel surcharges. If they're charging an additional $15 just to stop and make a 10-minute delivery, call them on it. If needed, switch vendors or suppliers.

Contractors are split down the middle between instituting a surcharge vs. raising price per sweep. Here are some of the pluses and minuses:

Surcharge advantages:

• Immediate cash flow help
• Perceived by many as a temporary measure, not a long term cost.
• Widely understood when on something like fuel cost increasing, which is usually common knowledge and thus not a surprise.

Surcharge disadvantages:

• Some customers may not pay it.
• Some customers may bid sweeping to elsewhere.
• Some customers may not be able to pay it. (May have to increase cost per sweep, instead.)
• Takes time to implement, then have to call some people and receive 'defense' calls from others.

When you add a surcharge...justify it!

Contractors are split down the middle between just adding a surcharge to an invoice, on the one hand, and writing a letter of explanation to customers. If you do notify customers, be sure to:

• Use the resources and graphics at www.eia.doe.gov/ to illustrate why you need the surcharge. There are various charts that show rate of increase in both gasoline and diesel fuel.

• Use the information to tell/show customers why you've added the charges, and include information about when it will be removed. I.e., amount of surcharge reflects fuel price of $XX/gallon. It will be removed when price of fuel falls back to $xx/gallon. Then be sure to remove it at that point.

• Offer to raise cost per sweep, in place of the surcharge, if customer would prefer.

• Whether or not you provide detailed notification or not, be sure to have the facts to justify your surcharge or any other mid-contract rate increases.

Fuel Excise Tax Guidelines

If you are not familiar with the requirements for getting back your fuel excise tax, be sure to read thoroughly the attached articles. The basics of the program are:

• **Fuel used by single engine sweepers does not qualify!**

• **Must be conservative in fuel usage;** use fuel usage stats from auxiliary engine manufacturers.

• **Generally the rebate is available for off-roadway fuel use only.**

• **Not all states regulations allow rebates.** Some states, for example, consider malls to be public property. If that's the case, you are generally not able to get a rebate.

• **State excise tax rebates are generally available.** Regulations vary from state-to-state. Check with your state excise tax office for details.

Municipal sweeping fuel *can* be tax-free

Municipalities don't have to pay excise tax on their fuel. Contractors sweeping municipal streets do, except...

• **Put in your contract that the municipal customer pays for the fuel** via a card lock or other, mutually agreeable, system. The important part is that the municipal entity must actually pay the bill!

Many thanks to the following industry professionals, all of whom provided insight and ideas for this seminar!

Diane Armstrong, Stripe-N-Sweep, Inc.
Carl Barton, Aardvark Sweeping
Uri Ben-Yashar, East Coast Lot Maintenance
Debbie Jacketta, Jacketta Sweeping
James Larko, Katsam Enterprises
Richard Minns, Complete Sweep, Inc.
Mike Nawa, Custom Maintenance Services
David Ross, Millennium Power Sweeping
Mark Schwarze, Victory Sweepers, Inc.

Daily Vehicle/Shop Management Activity Checklist

suggested by John Dolce

1. What is 'Out of Service' today and will not be returned to service by closing of this shift?
2. What is our present manpower attendance to get out maximum number of vehicles?
3. Is overtime desirable for a few hours today in order to finish vehicles?
4. Do we need any parts express-shipped?
5. What can/should be short-term repaired by vendor services (local shop or manufacturer's shop)?
6. Could we perform preventive maintenance on any vehicles while they are being repaired as a result of a driver write-up for service needed?
7. Depending on user needs, can we call in some vehicles for scheduled maintenance ahead of time, due to vacations, job peaks and/or work valleys?
8. What is scheduled to be brought in tomorrow?
9. Can we handle any 'past due' servicing on any vehicles?
10. Should we delay any scheduled servicing due to backlog or need for vehicle in service?
11. Communicate to users on the status of their vehicles.

General Business Tips

Fuel Surcharges: When, How, and How Much?

In a time of fast-moving fuel prices, don't let your margins erode because you haven't added in a fuel surcharge to customers.

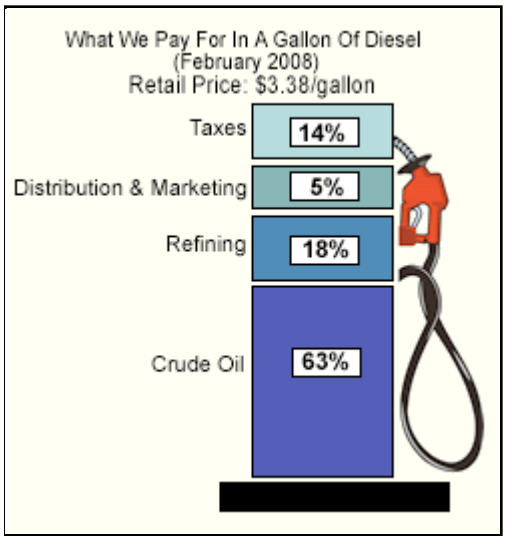
by Ranger Kidwell-Ross

posted April 2008

> A companion article that offers a variety of tips on ways to save fuel is also available.

Since the majority of sweepers operate on diesel fuel, the majority of this story will deal with diesel pricing and other issues. However, much of the information also applies to the use of gasoline, as well.

Rising fuel prices are fast becoming a way of life. With prices currently approaching, or rising above, $4 per gallon, without imposing a surcharge to customers there's no longer any way to keep current pricing *and* reasonable margins -- unless you were charging too much for your sweeping in the first place.



If you watch, you'll notice that the chart to the right changes every 10 seconds from the distribution of prices for diesel to the same information for gasoline. As I write this, in April of 2008, average fuel prices for diesel are over $4 per gallon in several areas of the U.S.

Yet, the latest 'gas pump charts,' as shown, show prices averaging about $3.50. That, in itself, illustrates the rapidity with which fuel prices have risen in the last several months.

Why diesel fuel prices are higher than gasoline prices

Until several years ago, the average price of diesel fuel was usually lower than the average price of gasoline. In some winters when the demand for distillate heating oil was high, the price of diesel fuel rose above the gasoline price.

Since September 2004, the price of diesel fuel has been generally higher than the price of regular gasoline all year round for several reasons. Worldwide demand for diesel fuel and other distillate fuel oils has been increasing steadily, with strong demand in China, Europe, and the U.S., putting more pressure on the tight global refining capacity.

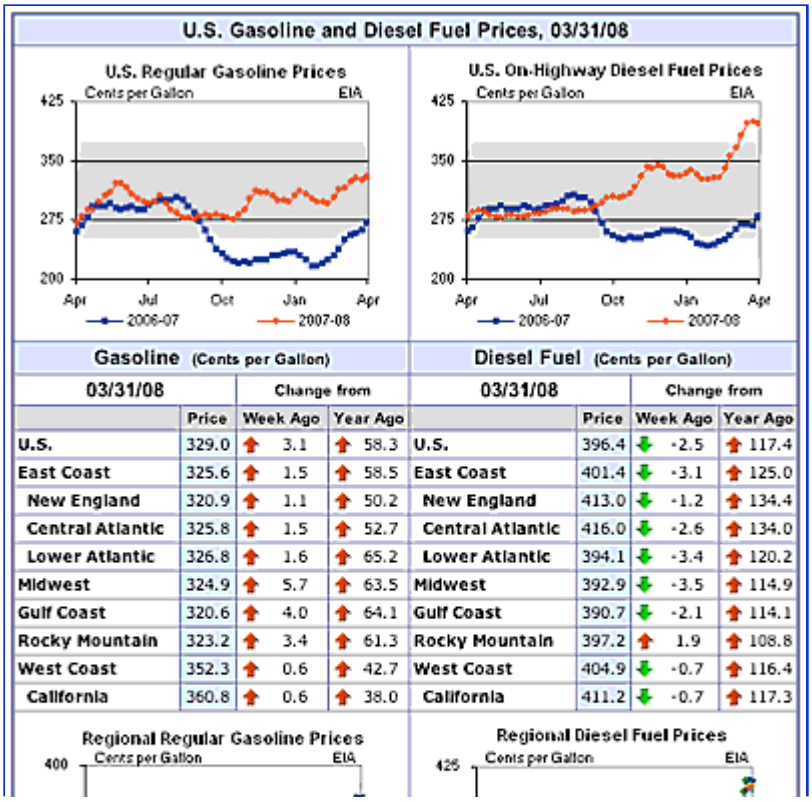
In the U.S., the transition to low-sulfur diesel fuel has affected diesel fuel production and distribution costs. Also, the Federal excise tax on diesel fuel is 6 cents higher per gallon (currently 24.4 cents per gallon) than the tax on gasoline.

If you are not currently getting an excise tax rebate on the tax you pay for your parking lot sweepers' engines, contact us.

Energy Information Administration
Official Energy Statistics from the U.S. Government

The leading government resource for fuel information is the U.S. Energy Information Administration (USEIA). At the agency's website you'll find a comprehensive explanation of current fuel policy, tax rates, refining and other information.

By looking at the agency's most recent chart, which will be similar to the one shown to the right, you can see what the changes have been to fuel prices in your region of the country. Click on the chart to access the USEIA page that offers an



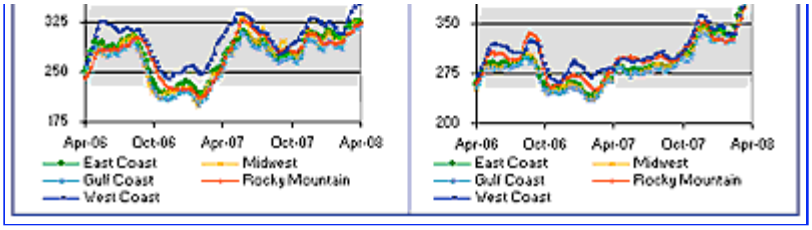
Gasoline (Cents per Gallon)

03/31/08	Price	Change from Week Ago	Change from Year Ago
U.S.	329.0	↑ 3.1	↑ 58.3
East Coast	325.6	↑ 1.5	↑ 58.5
New England	320.9	↑ 1.1	↑ 50.2
Central Atlantic	325.8	↑ 1.5	↑ 52.7
Lower Atlantic	326.8	↑ 1.6	↑ 65.2
Midwest	324.9	↑ 5.7	↑ 63.5
Gulf Coast	320.6	↑ 4.0	↑ 64.1
Rocky Mountain	323.2	↑ 3.4	↑ 61.3
West Coast	352.3	↑ 0.6	↑ 42.7
California	360.8	↑ 0.6	↑ 38.0

Diesel Fuel (Cents per Gallon)

03/31/08	Price	Change from Week Ago	Change from Year Ago
U.S.	396.4	↓ -2.5	↑ 117.4
East Coast	401.4	↓ -3.1	↑ 125.0
New England	413.0	↓ -1.2	↑ 134.4
Central Atlantic	416.0	↓ -2.6	↑ 134.0
Lower Atlantic	394.1	↓ -3.4	↑ 120.2
Midwest	392.9	↓ -3.5	↑ 114.9
Gulf Coast	390.7	↓ -2.1	↑ 114.1
Rocky Mountain	397.2	↑ 1.9	↑ 108.8
West Coast	404.9	↓ -0.7	↑ 116.4
California	411.2	↓ -0.7	↑ 117.3

up-to-date fuel pricing chart.



So, we've established that fuel prices are skyrocketing (as if you didn't already know...), and you can see roughly how much is paid in taxes, etc. The question is, how can you deal with this situation in a way to minimize its effect on you and your business?

Since the price of fuel is so volatile, one way to soften the blow to your customers -- as well as to show them that you are, indeed, passing along a real cost increase, is to align any surcharges with the current USEIA pricing chart. This can be very helpful for billing purposes, because it shows the reality of the cost increases from a solid source. To keep cancellations to a minimum, you want to do anything you can to reduce sticker shock for your customers.

This article also contains first-person information to help you better understand how other sweeping contractors in the industry are handling this situation.

First, read on to find out what veteran contractor, David Ross, of Massachusetts-based Millennium Maintenance and Power Sweeping, is doing in terms of proposing surcharges to his diverse customer base. Millenium sweeps the full gamut of outdoor sweeping, including parking areas, streets and roadways, and construction.

Ross' approach is very thorough and numbers-based, and is a recommended way to ensure that your customers understand the reasons for your surcharges.

In addition, I have conducted audio interviews with several other sweeping industry veterans. Each is identified as to both the part of the country in which they operate, as well as the type of sweeping operation they primarily run, i.e., parking area, street, construction, etc. Each is asked to specifically explain how they are dealing with the price increases in terms of passing along the costs to customers.

In just one year, Ross told me, Millennium's fuel bill has more than doubled to its current level of over $50,000 per month. Although Ross has resisted adding a separate fuel surcharge, he says the company simply can't continue to do so. Millennium is now in the process of implementing a fuel surcharge to its customers.

Ross makes it clear that his company is not profiting from the surcharge, but simply trying to maintain its reasonable profit margin. His company personnel are also, he said, doing

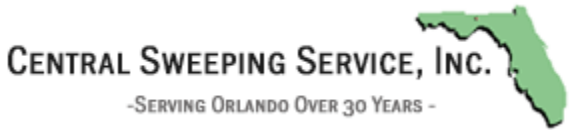
everything possible to get better fuel consumption throughout Millennium's fleet.

This includes checking tire pressure every day, changing fuel filters more often, training drivers on better driving techniques, shutting off engines whenever possible to eliminate unnecessary idling, buying their fuel in bulk, shopping for the best fuel prices, and tightening up and/or combining routes.

Ross has developed a very professional, understandable plan that prepares his customers for the surcharge. Part of that includes providing simple charts showing fuel cost increases for the last several years, using the information from the U.S. Energy Information Administration's website, as discussed at the start of this article. Ross also includes, in some cases, fuel consumption information for the trucks they use.

Millennium personnel are also exploring other options, including biodiesel and conversion to propane. As a component of his strategy, Ross feels it is vitally important to assure customers that Millennium employees are all doing their best to not waste a drop of fuel and that they have their clients' best interests in mind.

The following are three audio interviews on this topic with leading companies in other market segments of the U.S.



First we speak with Brian Oxtal, Director of Operations for Forida-based Central Sweeping Services, Inc. As you will hear, Central Sweeping is imposing surcharges to its customers. Oxtal provides some tips on how to best implement these extra costs and discusses his customers' reaction to date.

Next interview on the topic of fuel surcharges is Kerry Armstrong, president of Denver-area based Armstrong Power Sweeping .Armstrong's company was the first to become Certified through the North American Power Sweeping Association and is also a past winner of WorldSweeper.com's Award of Excellence in Power Sweeping.

Our third interview on this topic is with 25-year-veteran, Kathy Stotler, principal in Pittsburgh-area, 3 Rivers Power Sweeping. Also participating in the discussion is her son, Leroy, who is also an active participant in the business operations.

As you will hear, 3 Rivers has had a fuel surcharge system since 2003, and management is now in the decision-making process about rolling all surcharges into their basic cost of sweeping and then only re-imposing the surcharge system as deemed needed given future fuel price increases.

If you have questions or comments on this article, let us know and we'll post them here at the end of the article.

A companion article that offers a variety of tips on ways to save fuel is also available.

Parking Area Sweeping Contents

Parking/Business Tips Contents

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Federal Excise Tax Information

Federal Fuel Tax Rebates: Do You Qualify?

Many contractors don't take their sweeper fuel deduction.

by Kent Stoneking, Excise Tax Specialist,
US Internal Revenue Service

Private contractors may be eligible for a refund of a portion of the excise taxes they pay on their fuel. Currently, the federal excise tax is 24.4 cents per gallon on diesel, and 18.4 cents per gallon on gasoline, so this can be a significant amount. Here is an overview on available fuels, and what factors need to be considered when filing for an excise tax credit or refund on fuel.

Both diesel and gasoline are taxed when they leave a fuel storage facility. Generally speaking, this means the tax is applied prior to the wholesale level. It is then passed on to each purchaser, eventually winding up as a tax on the end-user. However, there are provisions that allow state and local governments to purchase fuel tax-free, if it's for their exclusive use. So, a municipality operating a sweeper would be able to purchase fuel that was already tax-free at the time of purchase. A private contractor operating a sweeper would not.

Since January 1st, 1994, there have been two types of diesel fuel available - undyed and dyed. Undyed diesel fuel is designed for a taxable purpose. The tax is imposed when the fuel initially leaves its terminal. However, if it ends up being used for a tax-exempt purpose, the end-user can file for a refund. If the fuel is sold to a state or local government for its exclusive use, the person making the sale to the government entity is the one who applies for the refund. Dyed diesel fuel, by contrast, is indelibly dyed at the point it leaves the terminal. This permanently dyed diesel fuel is intended strictly for non-taxable usage, and it has no excise tax attached to it at any point along the distribution chain.

There is also a side issue that encompasses the sulfur content of diesel fuel. All high-sulfur

diesel fuel is dyed, and all low-sulfur diesel hasn't been. However, to reduce emissions, the Environmental Protection Agency (EPA) doesn't want high-sulfur diesel to be used in motor vehicles. This has led to a demand for a dyed low-sulfur diesel, which may now become available.

A school bus operated by a school district is a clear-cut example of a vehicle that is exempt from federal excise taxes on fuel. It would be allowed to use dyed diesel fuel. However, the EPA might have something to say about the district using a high-sulfur dyed diesel, due to the environmental considerations.

When a contractor works for a government agency, eligibility for a rebate depends on who's taking the cost risk.

All gasoline is undyed, although in certain circumstances vendors can claim a refund if they're selling to a state or local government agency. That allows the fuel purchases to be made tax-exempt by the agency.

The next consideration is the fuel used by the chassis, or propulsion, engine of a sweeper. The definition of a non-taxable fuel is contained in Internal Revenue Code Section 6421. Although the code section is labeled 'gasoline,' the same definition is also used for diesel fuel. The first part covers fuel used by the chassis engine. It says that any fuel used in an off-highway business use is exempt from tax. Then, when you get into the definition of what qualifies as an off-highway business use, it's defined as any use other than as a fuel in a highway vehicle that is registered, or required to be registered, for highway use under the laws of a state or foreign country.

The question becomes: "Does a particular parking lot or street sweeper qualify as a highway vehicle?" The definition of a 'highway vehicle' is a motor vehicle that is intended to carry any type of a load over the public roads, whether or not it also performs any other function. In 1979, there was an IRS Revenue Ruling (#79-192) that determined that because a sweeper not only sweeps, but also lifts the sweepings into the vehicles and transports them to a destination over a public road, a street sweeper then qualifies as a highway vehicle. That means that any fuel used in the sweeper's *propulsion engine* is considered to be used in a highway vehicle, and is subject to tax. This is true, regardless of whether the sweeper is operating on a public road or in a private parking lot, as long as it is registered as a motor vehicle.

On the other hand, if state law in a particular state *does not* require registration, and if the sweeper is subsequently not registered as a motor vehicle, then a sweeper would not be considered to be a highway vehicle. If that is the case, then all fuel used by the sweeper, in both the propulsion and auxiliary engines, should be exempt from excise taxes. And, again, there's an overriding tax exemption for any fuel used by any state or local agency (state, city, county, regional, etc.), whether it's used on or off a road.

Next, let's cover the regulations pertaining to fuel used by a registered sweeper's auxiliary engine, whether or not it is separate from the engine operating the chassis. The way the regulation reads, for both gasoline and diesel, is that any fuel used by the propulsion engine of a vehicle is subject to tax, even if it is being used to operate other equipment, as well, by means of a power takeoff from the main engine. So, registered sweepers using a single engine to operate both propulsion and sweeping functions must pay excise tax on the fuel used.

On the other hand, if a given sweeper model has a separate auxiliary engine that operates the sweeper functions, then the fuel used by that engine is exempt from excise taxes, both on and off a highway. If there is a separate fuel tank for each engine, then calculating the excise tax exemption is as easy as keeping track of how much fuel is put into the auxiliary engine's fuel tank. If the fuel is coming from the same tank - which is the case with most sweepers - then an allocation needs to be made by the owner. The regulations say that this allocation "must be based on operating experience and supported by records." It goes on to say that "a device to measure the number of miles [a hubometer] may be used to make a preliminary determination of the number of gallons used to propel the vehicle." And, in order to make a final determination, you are required to add the number of gallons used while idling or warming up.

I would say that a valid method [for determining sweeper engine fuel usage] would be to use the auxiliary engine manufacturer's rated fuel usage per hour, at normal operating rpm, then come up with a number of gallons used based upon the auxiliary engine's hourmeter reading. Documentation would need to be made of the number of hours the engine was used in each time period for which an excise tax rebate was being sought. Any method used needs to be reasonable, as well as being supportable objectively. The use of miles per gallon and miles driven off-road has been shown to be a valid method of computation, as long as the estimated miles per gallon includes a factor for idling and warming up the engine. As far as I can see, using the sweeper manufacturer's figures for fuel usage, combined with an hourmeter tally, would be an acceptable method of record-keeping.

The question also arises regarding the taxability of chassis fuel used by a contractor who is sweeping the streets of a municipality under contract with the municipal agency. Generally speaking, if the municipality is using its own sweepers to sweep its streets, it would not pay excise taxes on the fuel it used. The fuel used by the contractor would be subject to excise tax, however there is an exception to this rule.

Determinations have been made on this issue and, although they concerned other industries, these would also apply to sweeping. One involved a contractor who was hauling garbage for a municipal agency. Others involved school buses being operated by a contractor for a school district. In these cases, the IRS ruled that if the governmental agency was bearing the risk of any change in the cost of fuel over the lifetime of the contract, then the fuel was considered to be sold for the exclusive use of the governmental agency, i.e., it was exempt from taxes. If, on the other hand, the contractor was bearing the risk of any change in fuel prices, then the fuel was taxable.

I'll use the garbage hauler case, which I worked on personally, as an example. As the contract was originally written, the contractor was paid a certain amount per load. The contract price was adjusted each year, according to changes in the consumer price index (CPI). The contractor provided its own fuel at whatever price it could get. The IRS ruling was that, because the contract didn't depend upon any change in the price of the fuel (the cost of fuel would be a component of the CPI, but only a very small portion), then the fuel was not sold for the exclusive use of the government agency.

Subsequent to this ruling, the government agency amended its contract. Under the revised agreement, the agency started buying the fuel and then provided it to the contractor in exchange for a fixed reduction in the contract price. The IRS ruling on the new situation went in the other direction. Now, since the governmental agency bears the risk of any change in fuel price, the fuel used (by the contractor while working for it under contract) is tax exempt.

It's important that the bill is sent to, and paid by, the governmental agency. An arrangement could be made, for example, to fuel at a commercial cardlock station. (As reference information, the IRS Revenue Rulings on the school bus contracts were ruling numbers 79-112 and 79-297. These are the rulings relied upon to make the decisions in the garbage-hauling situation.)

You should now be able to determine whether you qualify for an excise tax rebate on the fuel you use. If you do, you can use one of two methods to apply for it. One is to file for a refund on a quarterly basis. Until recently, a minimum tax refund amount of $1,000 on gasoline, and $750 for diesel, was required in order to be able to file quarterly. However, as of October of 1998, the qualifying amount for quarterly filing was dropped to a total refund amount of $750 for gasoline and diesel purchases combined. (For details on both claims and refunds, see IRS Publication #378, Fuel Tax Credits and Refunds. Quarterly refund requests require IRS Form #8849.) The quarterly refund is based on your tax year, not the calendar year. Thus, a company with a fiscal year ending in a month other than December would need to take that into account when filing claims.

You may also choose to use IRS Form #4136 to claim a fuel tax credit. This is then attached to your income tax return. If you choose to file for a credit at the end of the year, instead of on a quarterly refund basis, you may still deduct the estimated refund from your quarterly tax prepayment amounts. If you don't meet the minimum amount for filing a quarterly claim, your refund must be claimed by taking a credit on your income tax return. Even though there are some types of business credits that don't require a tax liability in order to deduct them, the excise tax refund is not one of them. For example, if you have a $500 fuel tax credit in a year that your business lost money (i.e., you can't use any more deductions), you will still be able to receive a $500 refund back.

If you were eligible for the excise tax rebate on fuel for previous years, but neglected to claim it, you can still file an amended tax return to get your refund. Typically, you can go back a maximum of 3 years for this type of claim. Information on this process is also contained in IRS Publication 378, which explains much of the information covered in this article.

Fleet Management Information for Sweeping Professionals

Five Steps toward Optimizing a Fleet Preventive Maintenance Program

***by Robert Johnson*,**
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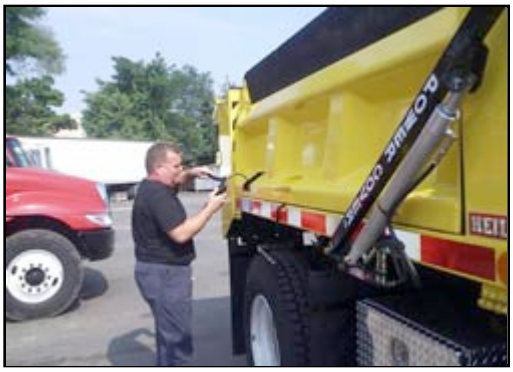
A solid preventive maintenance program can help vocational fleet managers keep vehicle repair costs and downtime to a minimum. An inefficient, poorly designed program can also cost time and money. Here are the areas that fleet managers should review in order to evaluate whether their preventive maintenance programs are optimized.

1. Analyze your fleet maintenance records. Are you tracking enough of the right information to make informed maintenance decisions? For example, simply recording that 'front end work' was completed on a vehicle does not give you enough information to detect failure trends for individual front end components. Your records should indicate at least the make and model of vehicle, date and mileage at time of service, and services performed to specific components. But remember, all the records in the world won't do a thing for you if you don't analyze the data.

2. Examine any unexplained incidents of demand maintenance that were required between scheduled preventive maintenance intervals. Look for trends. If a number of particular failures occur on certain vehicles, determine if it is possible to adjust your preventive maintenance program to eliminate those failures in the future. Some vehicles will be more prone to problems with certain systems than others. You may need to develop a

different preventive maintenance schedule for certain makes and models of vehicles in the fleet or for those operating in specific applications. Remember, one generic preventive maintenance program may not work equally well for all fleets, or even for all vehicles within a particular fleet.

3. A good measure of the efficiency of your preventive maintenance program is the number of 'touches' technicians have on a vehicle. For example, you may have a vehicle scheduled for preventive maintenance three times a year, but find that it was actually pulled in for service six times -- the three scheduled services, plus another three times for various other services such as government-required safety and emissions inspections. Proper scheduling would have enabled these inspections to have been handled at the same time as the preventive maintenance. Every time a technician touches a vehicle, it costs you money and represents possible downtime. On average, every vehicle 'touch' takes a minimum of an hour of labor. Proper planning can minimize these costs.



4. Determine whether you could be doing a better job of predictive maintenance. Use your records to calculate your fleet's average service life for various components, so you know when to proactively replace them. For example, say you find that Brand X alternators on Brand Y vehicles fail at around 85,000 miles on average. Your preventive maintenance schedule calls for 8,000-mile service intervals. Your service schedule, then, should include an alternator replacement as part of the first preventive maintenance service after 77,000 miles.

5. Keep in mind it is possible to set preventive maintenance intervals too close together. Intervals should be based on the type of vehicle application, usage (mileage, hours, operating environment, etc.), OEM warranty requirements and regulatory requirements. Far too many companies have one preventive maintenance schedule. But what's right for one vehicle may be too much for another vehicle and not enough for a third.

There is no one magic number for every vehicle in your fleet. And, just because you've always done it doesn't mean you have to continue doing it. Start your review by going back to the manufacturer's recommendations for the type of service for which you are using the vehicle. If your preventive maintenance intervals for the vehicle are more frequent than the manufacturer recommends, try conducting a lubricant analysis, primarily of engine oil.

Also check to see how much residual lubricant is present in unsealed joints at each service visit. If the oil analysis shows the oil is still good, there is still plenty of lubricant in each joint, and you have a good failure history, you may want to consider extending the service interval by a month and checking the same factors again. It's a combination of science with trial and error.