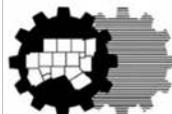


SMARTTE

Saving Money and Reducing Truck Emissions



North Central Texas
Council of Governments



SMARTE

Saving Money and Reducing Truck Emissions

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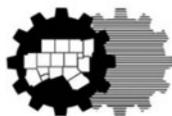
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North Central Texas
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SMARTER Program Overview

SMARTER || OVERVIEW

Saving Money and Reducing Truck Emissions

The North Central Texas Council of Governments (NCTCOG) has launched a new program called ***Saving Money and Reducing Truck Emissions (SMARTER)***, designed to improve industry awareness of freight traffic effects on air quality and encourage industry-specific best practices— all while helping save money!

In the last 10 years, many of the country's largest fleets have benefited from new and innovative technologies supported by the Environmental Protection Agency's (EPA's) SmartWay® program. These technologies are helping slash heavy-duty truck emissions while also lowering operational costs and maximizing uptime for drivers.

SMARTER's goal is to serve as a bridge to small and medium-sized fleets by promoting EPA SmartWay-verified technologies; providing information on regional trucking rules, and providing access to regional programs and networks that help drivers stay informed, in compliance, and connected to resources they need to drive SMARTER.

How do I get started?

- Complete upgrade profile
- Visit www.nctcog.org/SMARTER to learn more.
- Consider becoming a Dallas-Fort Worth Clean Cities sponsor
- Sign up for SMARTER emails for the latest information on grant funding opportunities, technologies, and more!

SERVICES AVAILABLE

As part of this role, SMARTER will:

Provide information on technological and operational solutions for freight efficiency.

- **Determine** combination of technologies best suited to fit driver's needs and provide return on investment.
- **Provide** a framework for freight efficiency and fleet operations through the Clean Fleet Policy.
- **Assist** with applications for federal, State, local, and non-profit funding assistance programs.
- **Educate** drivers and fleets about conditions that affect regional air quality.
- **Inform** users on local regulations that impact the freight industry.
- **Organize** information for driver training programs that increase driver's knowledge of freight efficiency practices.
- **Encourage** membership to Dallas-Fort Worth Clean Cities Coalition, which provides local support to fleets who are interested in alternative fuels.

To learn more or to sign up for email alerts about new funding opportunities, visit: www.nctcog.org/aqfunding.

SAVINGS EXAMPLES

The following examples demonstrate potential money saved using a sample of EPA SmartWay-verified technologies.

Auxiliary Power Units (APU) Potential Savings

*Idling
Costs*

Per Vehicle	Truck Idling		Auxiliary Power Unit	
	Idling		Idling	APU Use
Hours/Day	10		2	8
Days/Month	25		25	25
Hours/Month	250		50	200
Gallons/Hour	1		1	0.2
Gallons/Month	250		50	40
Fuel Cost/Gallon	\$ 3.00		\$ 3.00	\$ 3.00
Cost/Month	\$ 750.00		\$ 150.00	\$ 120.00
Total Cost	\$ 750.00		\$ 270.00	

*Equipment
Financing
Options*

Equipment + Installation Cost	\$9,500
<u>Loan Amount</u>	<u>- \$8,550</u>
Net Upfront Cost	\$ 950

Length of Loan (months)	12	24	36	48
Monthly Loan Payment	\$ (751.72)	\$ (394.50)	\$ (263.88)	\$ (216.83)
Monthly Savings	\$ 480.00	\$ 480.00	\$ 480.00	\$ 480.00
Monthly Net	\$ (271.72)	\$ 85.50	\$ 216.12	\$ 263.17

MONEY IN YOUR POCKET

Lifetime Net (48 months)	\$ 14,019.36	\$ 13,572.00	\$ 13,540.32	\$ 12,632.16
---------------------------------	---------------------	---------------------	---------------------	---------------------

Electrified Parking Spaces (EPS) Potential Savings

*Idling
Costs*

Per Vehicle	Truck Idling		Electrified Parking Space	
	Idling		Idling	EPS Use
Hours/Day	10		0	10
Days/Month	25		25	25
Hours/Month	250		0	250
Gallons/Hour	1		1	0
Gallons/Month	250		0	0
Fuel Cost/Gallon	\$ 3.00		\$ 3.00	\$ 2.00*
Cost/Month	\$ 750.00		\$ 0.00	\$ 500.00
Total Cost	\$ 750.00		\$ 500.00	

*Typical Basic Connection Fee

MONEY IN YOUR POCKET

Total Savings	\$1 /Hour	\$ 10/Day	\$ 250/Month	\$ 3,000/Year
----------------------	------------------	------------------	---------------------	----------------------

Tractor Tires Potential Savings

Operating Costs

Standard Tires		Tractor Tire Improvement	
Per Vehicle			
Miles/Gallon	6		6.19*
Hwy Miles/ Mo.	7,500		7,500
Gallons/ Mo.	1,250		1,211
Fuel Cost/Gallon	\$ 3.00		\$ 3.00
Cost/Month	\$ 3,750.00		\$ 3,633.00

*Low resistance tires are estimated to reduce fuel use by 3 percent or more

MONEY IN YOUR POCKET

Estimated Annual Savings	\$ 1,404.00
---------------------------------	--------------------

Aerodynamic Improvements Potential Savings

Operating Costs

Standard Vehicle		Aerodynamic Improvements	
Per Vehicle			
Hwy Miles/Year	90,000		90,000
Miles/Gallon	6		6.5
Gallons/Year	15,000		13,800
Fuel Cost/Gallon	\$ 3.00		\$ 3.00
Cost/Month	\$ 3,750		\$ 3,450

Equipment Financing Options

Equipment + Installation Cost*	\$ 3,500
Loan Amount	- \$ 3,150
Net Upfront Cost	\$ 350

*10 percent down + 10 percent interest

Length of Loan (months)	12	24	36	48
Monthly Loan Payment	\$ (291.66)	\$ (145.83)	\$ (97.22)	\$ (72.91)
Monthly Savings	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
Monthly Net	\$ 8.34	\$ 154.17	\$ 202.78	\$ 227.09

MONEY IN YOUR POCKET

Lifetime Net (48 months all scenarios)	\$ 10,900.08
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SMARTE || **VENDOR DIRECTORY**



The following vendors have signed up to participate in the SMARTE program. This means they support program goals and sell EPA SmartWay-verified technologies. Inclusion in this listing does not imply endorsement by the North Central Texas Council of Governments.

Please bring a SMARTE Program brochure or directory when you purchase technologies from any of the following vendors. At their own discretion, each vendor *may* offer a promotion to you when you mention the SMARTE Program at the time of purchase.

Vendors	SmartWay Certified Tractors & Trailers	Trailer Strategies	Aerodynamic Devices	Idling Reduction Equipment	Low Rolling Resistance Tires	Advance Lubricants
CANTWELL POWER SOLUTIONS - FW Matt Benton 2727 East Loop 820 South Fort Worth, TX 76119 817.731.2841 www.cantwellequip.com				 (On-Board)		
CENTRAMATIC Mike Hagar 5345 I35W South Alvarado, TX 76009 817.783.6396 www.centramatic.com				 (On-Board)		
CONVOY SERVICING COMPANY Randy Olson 3323 Jane Lane Dallas, TX 76106 682.777.6712 www.convoyservicing.com				 (On-Board)		
IDLEAIR Melvin Choat 629 N. Broad Way Knoxville, TN 37917 254.447.4063 www.idleair.com				 (Off-Board)		
MHC KENWORTH Tom Lawless 4040 Irving Blvd. Dallas, TX 75247 214.920.7300 www.mhc.com				 (On-Board)		

SMARTE || **VENDOR DIRECTORY**



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Vendors	SmartWay Certified Tractors & Trailers	Trailer Strategies	Aerodynamic Devices	Idling Reduction Equipment	Low Rolling Resistance Tires	Advance Lubricants
PORTER TRUCK SALES, L.P. Davy Compton 1200 North Highway 310 at I-45 Hutchins, TX 75141 972.225.2480 www.portertrk.com	✔					
RUSH TRUCK CENTERS DALLAS Toby Malone 515 North Loop 12 Irving, TX 75061 469.706.5239 www.rushtruckcenters.com	✔		✔	✔ (On-Board)	✔	
SHOREPOWER TECHNOLOGIES Alan Bates 5291 NE Elam Young Parkway Hillboro, OR 97124 503.892.7345 www.shorepower.com				✔ (Off-Board)		
UTILITY TRAILER OF DALLAS, INC. Bo Watson 3241 Lyndon B. Johnson Freeway Dallas, TX 75241 972.225.8845 www.utilitytrailerofdallas.com		✔	✔			✔

SMARTE || UPGRADE PROFILE FORM

Saving Money and Reducing Truck Emissions

CONTACT INFORMATION:

Company Name:		Phone Number:	
Contact Name:		Email Address:	
Number of Trucks:		Number of Trailers:	
Fleet Total:		Date:	
Owner Operator/Fleet Manager: (Choose One)			

TRUCK INFORMATION:

ENGINE INFORMATION:

Truck Make:		Annual Mileage:	
Truck Year:		Fuel Volume (gal/year):	
Day Cab or Sleeper:		Fuel Type:	
Vehicle Class:		Idling (hours/year):	
Lease or Own:		Current Odometer:	

ROUTE TYPE: (Choose One)

ROUTE DETAILS:

Local (DFW region):	
Long-Haul (100,000+ m/year):	
Drayage/Yard Hostler/Spotter:	

STRATEGIES:

	In Use	Interested		In Use	Interested
Advanced Lubricants:			Idling Control Strategies:		
Aerodynamic Devices:			Speed Management Policy:		
Engine & Truck Upgrades:			Tire Technology:		

Driver/Fleet Manager Signature

Date

CATEGORY	TECHNOLOGY	BRAND	MODEL NUMBER
Advanced Lubricants	Low Friction Drive Train Lubricants		
	Low Friction Engine Lubricants		
	Other Advanced Engine Lubricants		
Aerodynamic Devices	Aerodynamic Profile Tractor		
	Cab Side Fairing		
	Cab Aerodynamic Mirrors		
	Cab Air Dam Front Bumper		
	Cab Over Engine Tractor		
	Cab Roof Deflector		
	Cab Roof Fairing		
	Cab Integrated Roof Fairing		
	Flatbed Trailer Tarps		
	Trailer Bubble		
	Trailer Tails		
	Trailer Gap < 36"		
	Trailer Gap 36"-44"		
	Trailer Side Skirts		
Full Length Side Skirt			
Half Length Side Skirt			
Under Tray System			
Engine	Engine Replacement		
	Engine Repower		
Engine & Truck Upgrades	Direct Drive		
	Single Axle vs. Double Axle		
Idling Control Strategies	Auxiliary Power Unit		
	Driver Team		
	Engine Shut Down		
	Driver Training		
	Truck Stop Electrification		
	Other		
Speed Management Policy	55 to 65 MPH (select max)		
Tire Technology	Automatic Tire Inflation		
	Single Wide Tires		
	Low Rolling Resistance Tires		
	Other		

NOTES:

SMARTE || TRUCK TECHNOLOGY DIAGRAM

Saving Money and Reducing Truck Emissions



Technology Checklist

2007 or Newer Engine:	Y/N	<input type="checkbox"/>
Certified Clean Idle:		<input type="checkbox"/>
Retrofit Exhaust		<input type="checkbox"/>

Idle Reduction:	Y/N	<input type="checkbox"/>
Low Rolling Resistance Tires:		<input type="checkbox"/>
Weight Reduction:		<input type="checkbox"/>

Aerodynamics	Y/N
Trailer Skirts:	<input type="checkbox"/>
Rear Fairing:	<input type="checkbox"/>
Fuel Tank Skirts:	<input type="checkbox"/>

Idle Reduction Overview

SMARTER IDLE REDUCTION OVERVIEW

Saving Money and Reducing Truck Emissions

The freight industry, while vital to the North Central Texas economy has a significant impact on ozone-forming pollutants within the 10-county nonattainment area, making it an ideal target for significant air quality improvement goals.

Behavior Change

Driver behavior can be one of the most important factors in reducing cost due to idling. Excess idling can be reduced by warming up the engine for three to five minutes when starting a shift or simply turning off the engine when staging at trucking terminals.

Managers can encourage ideal behaviors by providing dedicated breakrooms for drivers to use when staging at a pick up or drop off location.

Nationally, overnight idling is estimated to contribute over 200,000 tons of nitrogen oxides (NO_x) and 5,000 tons of particulate matter (PM) annually. NO_x emissions contribute to regional ozone levels and reduced visibility. Because of this and the inherent health impacts of poor air quality, idle reduction efforts are being made across North Central Texas.

Idle reduction efforts can be divided into two broad categories:

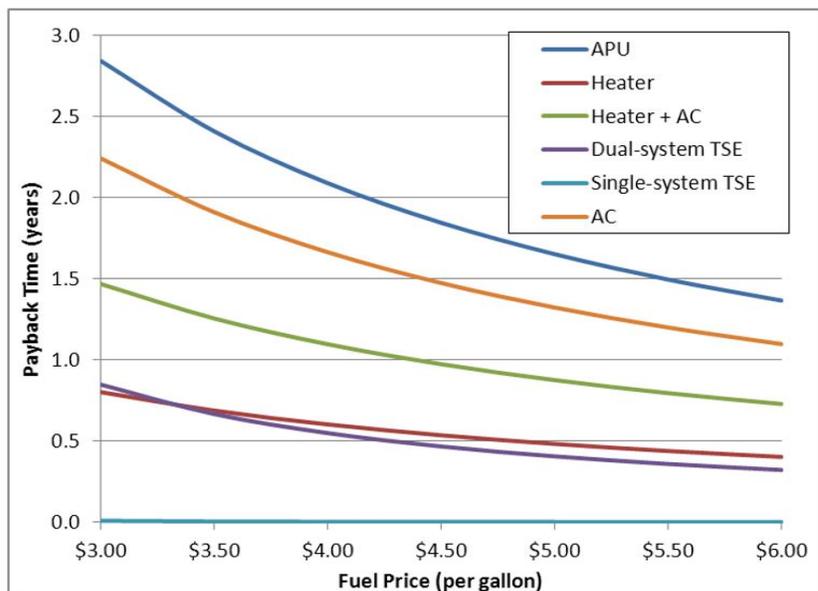
1. Idle Reduction through Technology
2. Idle Reduction through Behavior Change

BENEFITS OF IDLE REDUCTION TECHNOLOGY

Idle reduction technology is often called the “low-hanging fruit of fuel economy.” Because the upfront costs to investing in idle reduction technologies are relatively small, the return on investment is quick.

Idle Reduction Technology **cuts operational costs**— the typical U.S. tractor-trailer uses approximately one gallon of diesel fuel every hour and costs an additional 50 cents to 95 cents an hour in maintenance. By using idle reduction technologies, drivers can save thousands of dollars in operational costs each year.

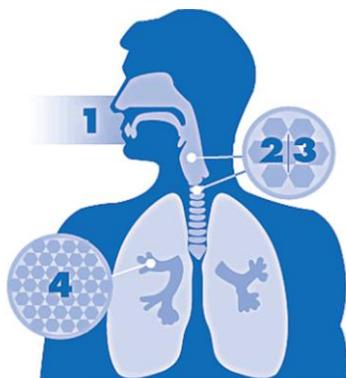
Exhibit 1: Idle Reduction Technology Payback



Source: National Academy of Sciences Committee Review of the 21st Century Partnership

Idle reduction equipment pays for itself in six months to two years (at 2013 fuel prices). **Exhibit 1** represents the payback time for a long-haul truck that idles an average of 40 hours per week.

- Idle Reduction Technology **improves regional air quality**— 10 counties in the DFW area are classified as moderate nonattainment for the pollutant ozone. Ozone is formed when NO_x and volatile organic compounds mix in the presence of sunlight and heat. Programs to reduce NO_x emissions from mobile sources, which produce approximately 76 percent of ozone forming pollutants, are an important element in working toward ozone attainment.
- Idle Reduction Technology **protects driver's health**— diesel engine exhaust is made up of two main parts: gases and particulate matter (PM); together, these two parts account for thousands of toxic chemicals and particulates that directly impact the health of drivers. In 2011, the World Health Organization formally classified diesel engine exhaust as carcinogenic to human health. By utilizing idle reduction technologies like publicly available electrified parking spaces (EPS), drivers can almost eliminate the amount of emissions they inhale using closed, filtered heating, ventilation, and air conditioning (HVAC) systems that draw air from inside the cabin.



- 1 PM enters the respiratory (lungs) system through the nose and throat.
- 2/3 Larger particulate matter (PM₁₀) is eliminated through coughing, sneezing and swallowing.
- 4 Fine particulate matter, PM_{2.5}, can penetrate deep into the lungs. It can travel all the way to the alveoli, causing lung and heart problems, and delivering harmful chemicals to the blood system.

TECHNOLOGY OPTIONS

Categories of Idle Reduction technologies include:

- **Off-Board Equipment:**
Truck Stop Electrification (TSE)
Electrified Parking Spaces (EPS)
- **On-Board Equipment:**
Auxiliary Power Units (APU)
Fuel Operated Heaters (FOH)
Battery Air Conditioning (AC)
Thermal Storage Systems (TSS)

Electrified Parking Spaces (EPS)

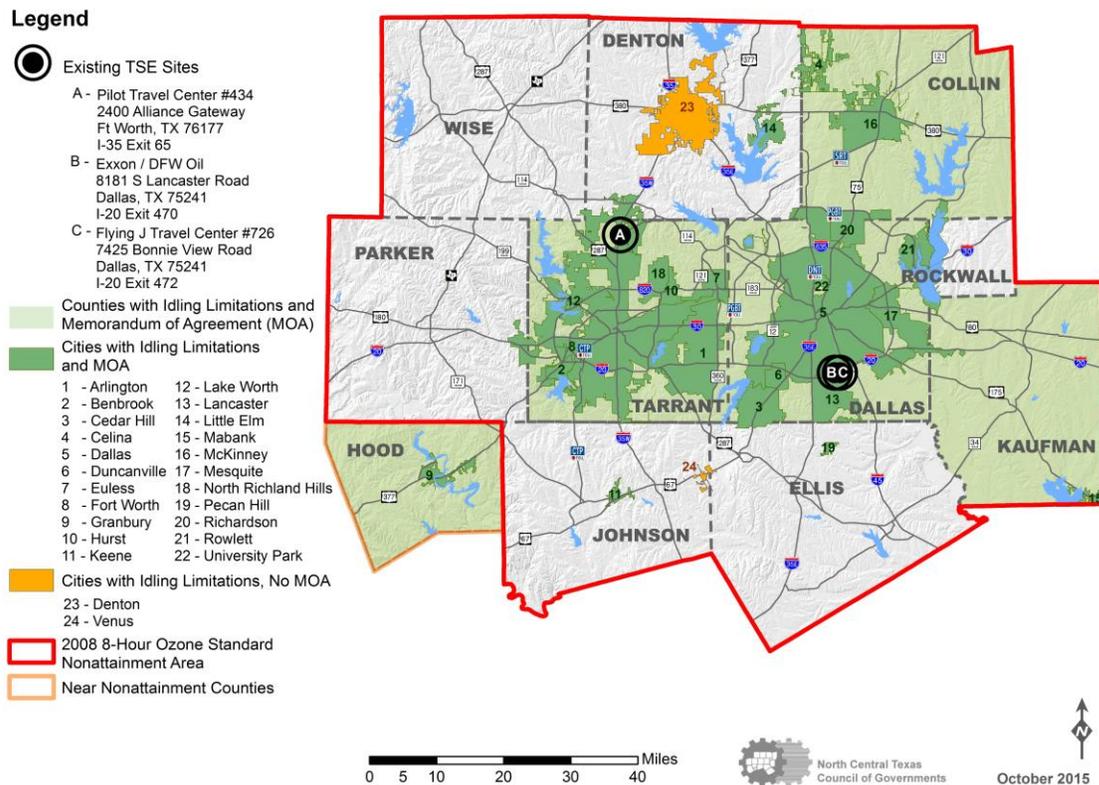
EPS describes idle reduction technologies that allow drivers to turn off their engines while at rest by providing access to necessary HVAC systems and electricity for accessory use without idling the engine. The difference between EPS and other idle reduction technology options is that most EPS are off-board. EPS are most widely used at truck stops— commonly referred to as Truck Stop Electrification (TSE) — where drivers use their vehicle's sleeper berth in order to comply with government mandated rest periods.

In addition, many private trucking terminals have recently invested in EPS to accommodate concentrated areas where drivers frequently rest before starting another run. This has resulted in dramatically improved air quality for all terminal employees and reduced operational costs.

LOCALLY ENFORCED IDLING RESTRICTIONS

In some areas of North Texas, operators of gasoline or diesel vehicles with a gross vehicle weight rating (GVWR) of more than 14,000 pounds may not idle the main engine of the vehicle for more than five minutes when the vehicle is not in motion. This rule is in effect year round. Violation of this rule may result in a fine. The map below illustrates where these rules are in place. TSE sites are indicated on the map below with a colored star.

North Texas Idling Restrictions and Idle Reduction Infrastructure



In order to comply with the rule, drivers can either invest in an on-board technology option or take advantage of several publicly available truck stops that have TSE. Drivers are encouraged to use TSE whenever possible.

Exceptions to the Rule

Vehicles with a sleeper berth are exempt from idling restrictions during the government mandated rest period. However, this exemption does not apply within a two-mile radius of a TSE/EPS connection. Officers use driver's log books to determine whether a driver's idling was allowed due to a government-mandated rest period.

For more information about idling restrictions in North Central Texas, visit engineoffnorthtexas.org

North Central Texas Council of Governments Overview

THE NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS

The North Central Texas Council of Governments (NCTCOG) is a voluntary association of, by and for local governments, and was established to assist local governments in planning for common needs, cooperating for mutual benefit, and recognizing regional opportunities for improving the quality of life in North Central Texas.

As part of this role, NCTCOG also serves as the region’s Metropolitan Planning Organization (MPO) and is responsible for transportation planning.

NCTCOG’S ROLE IN REGIONAL AIR QUALITY PLANNING

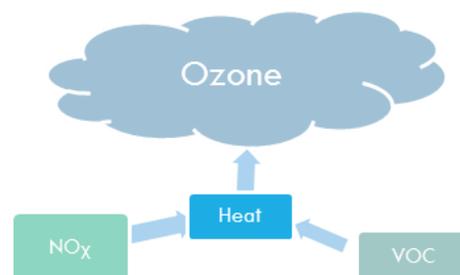
Ten counties in the Dallas-Fort Worth (DFW) area have ozone levels that are higher than limits set by the Environmental Protection Agency. About two-thirds of the ozone pollution is caused by “mobile sources”— cars, trucks, trains, buses, etc. Therefore, as the MPO, NCTCOG is also responsible for identifying and implementing programs, projects, and policies that reduce ozone-forming pollutants from the transportation system.

What We Know:

- **North Central Texas is a leader in global and domestic trade** – Despite being the largest metropolitan area in the nation without access to a sea port, the DFW area is the largest inland port in the nation with approximately 83 percent of all goods transported to and from the region on trucks, making ground level freight a vital part of the region’s economy.¹
- **Diesel engines are a major source of ozone forming pollutants** – Generally, trucks and trains use diesel fuel. Diesel engines are a major source of nitrogen oxides (NO_x), which is the primary precursor to ground-level ozone formation in the 10-county eight hour ozone nonattainment area.
- **Ignoring air pollution will negatively affect the regions’ economy** – Failure to meet federal standards for air quality could result in additional emission control requirements that negatively affect local businesses. It may also result in a freeze on all federally-funded transportation projects, costing the region millions in federal transportation funding and which would ultimately affect jobs in the region.

Exhibit 2.1 Ground Level Ozone Formation

Exhibit 2.1 illustrates the chemical reaction that takes place when NO_x and volatile organic compounds (VOC) mix in the presence of heat creating ground level ozone.



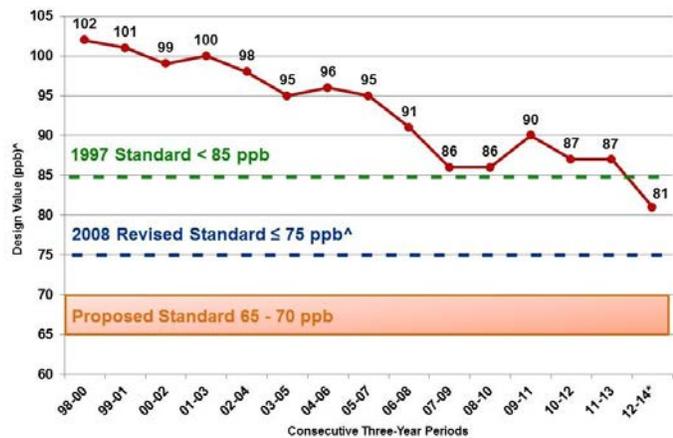
FUNDING RESOURCES

Regional Air Quality Solutions

NCTCOG, along with State and federal agencies, maintain a variety of funding programs to reduce regional emissions and are available throughout the year to provide application assistance at no cost. The sections below highlight select local, State, and federal opportunities available.

To learn more about air quality funding opportunities or to sign up for email alerts, visit: www.nctcog.org/aqfunding.

Exhibit 2.2 Ozone Historical Trends in North Central



*Attainment Goal - According to the US EPA National Ambient Air Quality Standards, attainment is reached when, at each monitor, the Design Value (three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration) is equal to or less than 75 parts per billion (ppb).
*2014 data not certified by the Texas Commission on Environmental Quality. Source: NCTCOG, TR Dept

Exhibit 2.2 illustrates that while air quality has improved significantly, more work remains to be done.

Local Opportunities: NCTCOG

NCTCOG offers funding from time to time for projects that reduce emissions from vehicles and equipment. Since 2009, NCTCOG has administered about \$14.4 million in grant funding to complete over 1,000 individual activities that benefit heavy-duty trucks. Projects include idle reduction technologies, SmartWay-verified tires and aerodynamics, and replacement of older trucks with newer, cleaner models. To be eligible for clean vehicle funding from NCTCOG, fleets must adopt the Clean Fleet Policy.

State Program: Texas Emissions Reduction Plan (TERP)

TERP is a State financial incentive program established to provide grants to reduce emissions from sources in the State's nonattainment areas and areas of concern. Since 2001, approximately \$1 billion has been awarded to for projects for replacing or upgrading over 16,000 vehicles and pieces of equipment. Applications are usually accepted once every other year. The programs outlined below are those that can be applicable to heavy-duty long haul trucks.²

- Emissions Reduction Incentive Grants Program (ERIG)
- Texas Natural Gas Vehicle Grant Program (TNGVGP)
- Rebate Grants Program
- Texas Clean Fleet Program (TCFP)

Federal Program: Diesel Emissions Reduction Act (DERA)

DERA is a federal funding assistance program established to meet critical local air quality needs by deploying both proven and emerging technologies that would otherwise not occur. From 2008 to 2010, nearly \$470 million was awarded to retrofit, replace, or repower more than 50,000 vehicles and equipment across the country.³

¹ Freight Analysis Framework 3, Federal Highway Administration

² TERP Project Summary Reports and Publications, www.tceq.state.tx.us/airquality/terp/leg.html

³ Second Report: Highlights of the Diesel Emissions Reduction Program., <http://www.epa.gov/cleandiesel/documents/420r12031.pdf>

Quick Take

Dallas-Fort Worth Nonattainment Area

Ten Dallas-Fort Worth area counties do not meet the EPA's regulation for ozone pollution, meaning the region has additional environmental responsibilities when completing transportation improvements. The nonattainment counties are Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant and Wise. The region has until 2018 to meet the new 75 parts per billion (ppb) standard.

What is ozone?

Ozone (O₃) is a gas formed in the atmosphere when three atoms of oxygen combine. Ozone is found both high in the stratosphere and near the ground. Ground-level ozone, which is harmful to our health, forms when nitrogen oxides (NO_x) and volatile organic compounds (VOCs) are released in the air and mix in the presence of sunlight. High concentrations of ozone usually occur during the summer.

Where does it come from?

Ozone emissions come from many sources. In DFW, mobile sources (vehicles, construction equipment) are the primary concern, accounting for 66 percent of NO_x emissions.

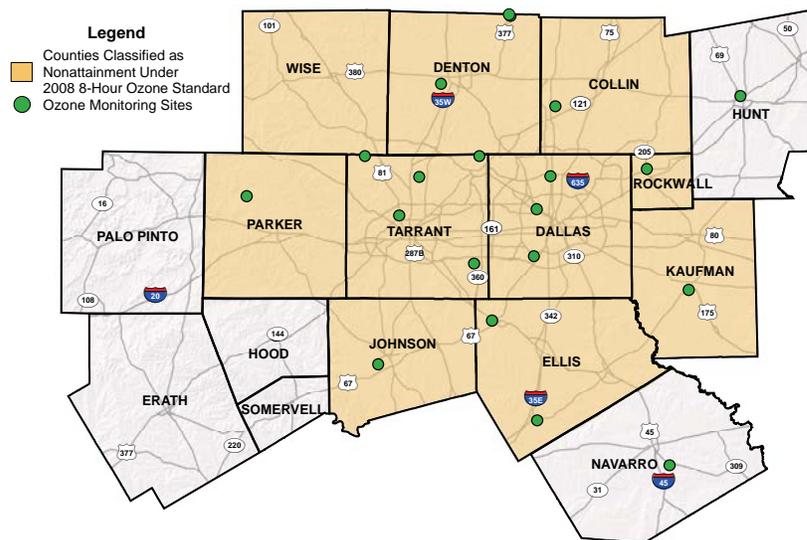
Air Quality Essential to DFW Transportation

The North Texas transportation system is an expensive asset to maintain. By 2035, the rapidly growing region expects to spend approximately \$94.5 billion in an effort to improve the reliability of its roads, rails and other transportation elements.

In North Texas, transportation planners have more to think about than how to get people where they are going more efficiently. Ten DFW area counties are out of compliance with the Environmental Protection Agency's (EPA) ozone standard. While there are a number of reasons for this, transportation professionals have to ensure mobility improvements can be made without negatively impacting the air. The region must implement measures to improve its air quality or face future sanctions from the EPA and potentially lose transportation funding. With a rapidly growing population and aging infrastructure, the DFW area needs more funding, not less.

The North Central Texas Council of Governments works closely with regional partners to develop and implement strategies, policies and programs to enhance air quality. NCTCOG periodically allows public and private entities to compete for funding intended to reduce the emissions of their fleets and purchase cleaner equipment. NCTCOG also uses programs that allow the public to participate in the process. Travel Demand Management and Transportation Systems Management strategies also help NCTCOG improve air quality.

10-County Nonattainment Area



The design value, which determines a county's or region's attainment status, is the three-year average of the fourth-highest value recorded at any given monitor. The 2008 8-hour National Ambient Air Quality Standard for ozone is exceeded when the design value in more than 75 ppb.

Categories of Emissions Sources

- AREA – Oil and gas drilling, bakeries, paint shops, dry cleaners
- NON-ROAD MOBILE – Construction, aircraft, locomotive, lawn and garden equipment
- ON-ROAD MOBILE – Cars, trucks, buses
- POINT – Cement facilities, power plants
- BIOGENICS – Vegetation, wildfires

How is Ozone Harmful?

Ozone in the upper atmosphere, “good ozone,” is beneficial and serves as a protective layer blocking damaging ultraviolet rays from the sun. Ground-level ozone is potentially harmful. Studies indicate elevated levels of this “bad ozone” may make breathing more difficult, increase the frequency of asthma episodes and reduce the body’s ability to resist respiratory infections. In addition to threatening human health, high ozone concentrations pose a risk to the environment, wildlife, agriculture and manufactured structures in the region.

Air Pollution Alert System

It is important to stay informed of daily air quality information in North Texas. Residents can sign up to receive air pollution alerts when ozone levels are forecast to be high. These alerts indicate that air quality is likely to reach unhealthy levels within 24 hours. These email alerts inform residents, businesses and industries of expected high ozone days so they can make decisions that contribute to cleaner air.

It is recommended people stay indoors or limit their outdoor activity when ozone levels are high. The elderly and children, as well as those with respiratory problems, could suffer severe health problems from prolonged exposure even when the air quality is only moderately unhealthy. Residents can also make behavioral changes year-round, such as carpooling or taking transit, to help reduce emissions levels and decrease the number of bad ozone days.

To sign up for air pollution alert emails, visit www.airnorthtexas.org/Commit.asp.

History

Ozone is one of six pollutants governed by National Ambient Air Quality Standards set by the EPA. The ozone standard is periodically reviewed and updated when a change is deemed necessary to protect people’s health. In 1990, the EPA established the 1-hour ozone standard, which North Texas has met. In 2004, an 8-hour standard was introduced to replace the 1-hour standard. The 10-county nonattainment area met the 84 ppb requirement in 2014. A more stringent 8-hour standard of 75 ppb, which DFW must meet by 2018, was adopted in 2008. Even when the current standard is reached, NCTCOG will continue working with regional partners on programs to help residents breathe easier for generations. A revised 8-hour standard is out for public comment and could result in the design value moving to between 65 and 70 ppb by December 2015.

Color	Air Quality	Actions to Protect Your Health
●	good	None necessary
●	moderate	Unusually sensitive people should consider limiting prolonged outdoor exertion
●	unhealthy for sensitive groups	Active children and adults and people with respiratory disease, such as asthma, should <i>limit</i> prolonged outdoor exertion
●	unhealthy	Active children and adults and people with respiratory disease, such as asthma, should <i>avoid</i> prolonged outdoor exertion; everyone else, especially children, should <i>limit</i> prolonged outdoor exertion
●	very unhealthy	Active children and adults and people with respiratory disease, such as asthma, should <i>avoid all</i> prolonged outdoor exertion; everyone else, especially children, should <i>limit</i> prolonged outdoor exertion

Source: EPA



North Central Texas Council of Governments

Phone: 817-695-9240
 Fax: 817-640-3028
 E-mail: transinfo@nctcog.org
NCTCOG.org/trans

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[Instagram.com/nctcogtrans](https://www.instagram.com/nctcogtrans)

Quick Take

What:

The Clean Fleet Policy is a measure local cities, counties, school districts and private companies are asked to adopt that helps reduce emissions. The policy has been in place since 2005 as one of many tools used by the North Central Texas Council of Governments to move the ozone nonattainment area closer to compliance with the federal government's ozone standard. It was updated in 2014 to ensure it keeps up with evolving technologies.

Significance:

Entities must adopt the policy in order to be eligible for vehicle funding from the Regional Transportation Council.

Inside the Numbers:

76

The percentage of nitrogen oxides (NO_x) produced by mobile sources. When NO_x and volatile organic compounds (VOCs) mix in the presence of sunlight, they create ozone pollution.

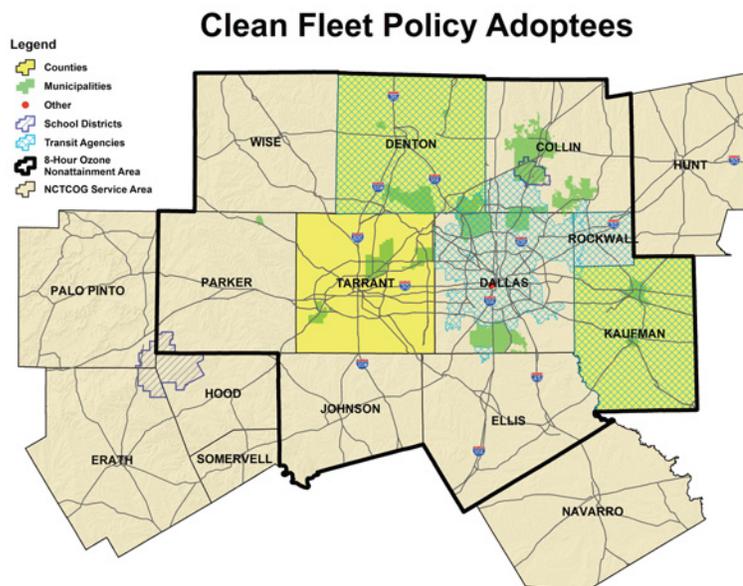
Clean Fleet Policy brings attainment closer

NCTCOG relies on many programs and policies that empower residents and businesses to make choices that can lead to cleaner air. The Clean Fleet Policy is among the many tools used to improve the environment, providing cities, counties, school districts and other adopting entities the opportunity to directly contribute to the effort. Ten Dallas-Fort Worth area counties are in nonattainment for ozone, formed when nitrogen oxides and volatile organic compounds mix in the presence of sunlight. According to the Texas Commission on Environmental Quality, 76 percent of NO_x and 25 percent of VOCs are created by mobile sources such as cars, trucks and construction equipment. Public and private fleets can play an active role in improving air quality by adopting the Clean Fleet Policy.

The Clean Fleet Policy, revised in 2014, outlines goals and provides workable, cost-effective solutions to reduce emissions from local fleets and support ozone attainment efforts. NCTCOG staff and other resources are available to help with policy elements and strategies for communicating the policy to fleet personnel. Fleet operators and other personnel can obtain training to familiarize themselves with air quality and petroleum-reduction goals.

The revised policy aims to:

- Reduce fleet emissions through implementation of an idle-reduction policy or standard operating procedure
- Reduce overall fuel consumption
- Encourage partnerships with the Dallas-Fort Worth Clean Cities and NCTCOG
- Ensure fleet personnel are familiar with and able to implement air quality and petroleum-reduction goals



Entities are required to adopt the revised Clean Fleet Policy in order to be eligible for vehicle funding from the RTC.

FACTSheet

Adoptees are also expected to pursue low-emission vehicles and equipment with an emphasis on alternative fuel and advanced and/or EPA SmartWay®-certified technology when feasible.

Entities that follow this policy and adhere to the annual reporting requirements through the Clean Cities Annual Report are eligible for Regional Transportation Council funding. The Clean Cities report helps identify how entities are implementing the Clean Fleet Policy in their jurisdictions. Participants are also eligible for the Fleet Recognition Program, which highlights the efforts of fleet operators to adopt technologies and practices that will lead to cleaner air.

The RTC periodically makes clean-vehicle funding available, offering assistance with transit, Congestion Mitigation and Air Quality, and other programs aimed at improving regional transportation and air quality.

The Clean Fleet Policy has been in place in DFW since 2005, when public entities were asked to adopt and follow its guidelines for public-sector vehicles in an effort to improve air quality. Since the initial policy was adopted, much has changed in the region. Growth continues to define the Dallas-Fort Worth area, and technological advances are making it easier to run cleaner vehicles.

Whether it is the addition of school buses to transport more students, law enforcement vehicles for expanding forces, city cars to meet basic needs of new and existing residents or trucks delivering goods to their destinations, local governments and the private sector have an opportunity to purchase cleaner fleets. A template for entities wishing to adopt the policy and other helpful resources are available at www.nctcog.org/fleetpolicy.

Examples of vehicles covered by policy:

	Light-duty vehicles: cars, patrol cars, pickups, SUVs, vans, low-speed/neighborhood vehicles, motorcycles
	Heavy-duty vehicles: school buses, shuttle buses, transit buses, refuse trucks, large trucks (with no trailer)
	Off-road vehicles: Construction equipment, farm equipment, forklifts, landscaping equipment



North Central Texas Council of Governments

Phone: 817-695-9240 Fax: 817-640-3028

Email: transinfo@nctcog.org

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SmartWay Helps Freight Industry Contribute to Cleaner Region

Quick Take

SmartWay Transport is a voluntary, public-private partnership with the freight industry that the Environmental Protection Agency started in 2004 to focus on reducing emissions, improving fuel economy and increasing energy efficiency.

Significance:

Reducing emissions in the freight sector is important. Heavy-duty diesel vehicles, specifically 18-wheelers, contribute about 30 percent of all regional on-road NOx emissions but are only 5 percent of the vehicle miles traveled in the DFW region. By reducing freight emissions, SmartWay is one of many programs the region is relying on to reach attainment of the federal ozone standard.

Inside the Numbers:

120 million

Barrels of oil saved by the SmartWay program since its inception in 2004. This has resulted in \$16.8 billion less spent on fuel.

The SmartWay program is a voluntary, public-private partnership with the freight industry that the Environmental Protection Agency (EPA) started in 2004 to focus on reducing emissions, improving fuel economy and increasing energy efficiency. These goals are synonymous with ongoing efforts to improve air quality and meet the federal ozone standard, which suggests that SmartWay can be a powerful tool for reducing emissions in the Dallas-Fort Worth (DFW) area. These emissions reductions are important because heavy-duty diesel 18-wheelers contribute about 52 tons of on-road mobile nitrogen oxide (NOx) emissions in the DFW area, thus significantly impacting ozone levels. SmartWay also saves participating companies money.

The North Central Texas Council of Governments (NCTCOG) joined SmartWay as an affiliate in October 2006. In this role, NCTCOG promotes the initiative in the region and provides education and outreach to potential partners and affected industries. Partners enjoy the financial benefits SmartWay technologies provide, while the region's air quality improves. Supported by major freight industry associations, environmental groups, states, companies and trade publications, SmartWay presents a model of government and industry cooperation.

Due to the success of the program, the EPA expanded SmartWay to include SmartWay Transport Partnership, SmartWay Technology Program, SmartWay Vehicles and Smartway International interests.



This truck is equipped with SmartWay-verified aerodynamics, low-rolling resistance tires and an auxiliary power unit (APU). With the help of an American Recovery and Reinvestment Act grant, six freight companies secured improvements needed to boost the fuel efficiency of their fleets in the DFW area.

Source: Southeastern Freight Lines

FACTSheet

SmartWay Transport is the EPA's primary program for improving fuel efficiency and reducing emissions in the transportation supply chain industry. Texas is home to nearly 200 SmartWay Transport partners from many sectors of the transport industry. Almost half are located in the DFW area.

EPA SmartWay Technology Program provides EPA-verified technologies designed to reduce emissions and improve fuel economy. Trailer aerodynamics, idle-reduction technologies and low-rolling resistance tires are examples of equipment SmartWay promotes to improve the environmental impact of the freight sector.

Through the EPA-American Recovery and Reinvestment Act (ARRA) support, NCTCOG funded the SmartWay Technology Upgrade Project. This project helped six companies purchase over 500 technologies for DFW-based trucks, reducing approximately 20.6 tons of NO_x, 0.47 tons of particulate matter (PM), and 3,450 tons of carbon dioxide (CO₂) emissions annually. The CO₂ savings is the equivalent of what would be produced by powering 431 homes for one year. This would also save 310,813 gallons of diesel fuel annually.

SmartWay Certified Vehicles: The EPA also created a system to help consumers make informed choices when purchasing a new vehicle through development of a rating system for emissions and fuel economy of every new car, truck and SUV. A SmartWay-certified vehicle produces far fewer emissions and uses less fuel than the average vehicle. Only about 20 percent of vehicles available in a given model year earn the SmartWay certification. By

choosing to purchase such a vehicle, consumers can feel confident that they are helping themselves and the region. To view the complete list of SmartWay-certified vehicles, visit www.epa.gov/greenvehicle.

BENEFITS

Fuel Savings

Fuel is often the primary expense for truck fleets. Annual fuel costs for 18-wheelers can be in the range of \$70,000 to \$125,000. This means 10 percent improvement in fuel economy can save \$7,000 to \$12,500 per year. These fuel savings provide a return on investment for aerodynamic and idle-reduction technologies, often in less than one year.

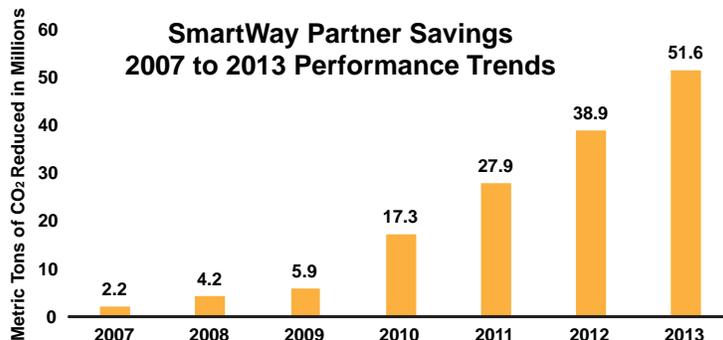
Idle Reduction

A typical long-haul combination truck that eliminates unnecessary idling can save over 1,000 gallons of fuel, or \$3,600 each year. This will also lower engine maintenance costs for the truck, reduce NO_x and PM emissions, and remove nine metric tons of CO₂. The CO₂ reduction is equivalent to the amount of fuel used to run a Ford F-150 for more than one year, assuming a fuel economy of 16 miles per gallon.

Aerodynamics

Aerodynamic technologies increase fuel economy. Using a streamlined-profile tractor with aerodynamic devices can improve fuel economy by over 3 percent and will reduce fuel costs by over \$2,000. When adding an aerodynamic trailer, up to an 11 percent increase in fuel economy can be realized, saving 16 metric tons of CO₂.

The growth of the EPA's SmartWay program has resulted in significant environmental benefits for North Texas and the rest of the nation. This graph shows the region's cumulative savings as a result of the program.



North Central Texas Council of Governments

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Fax: 817-640-3028

E-mail: transinfo@nctcog.org

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SmartWay Information

There are many ways to ship goods. This is the smartest way.

1. What is SmartWay?

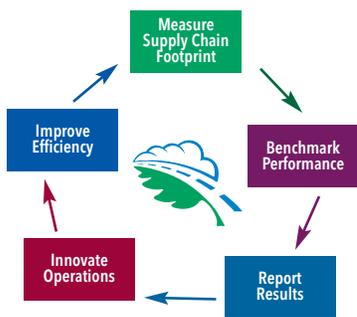
SmartWay is an innovative, voluntary, public-private, market-driven partnership. SmartWay helps companies improve their transportation supply chains – to move more ton-miles of freight with lower emissions and less energy, and at a lower cost. It helps companies gain a competitive edge and enhance their corporate image.

2. Who can join SmartWay?

Since 2004, 3,000 of the nation's shippers, logistics companies, truck, rail, barge and multimodal carriers (including many Fortune 500 companies) have registered with SmartWay. SmartWay carriers now account for 22% of all trucking miles. SmartWay is actively working to expand to all freight modes.

3. How does SmartWay work?

SmartWay gives its partners a consistent set of EPA-tested tools to make informed transportation choices – to help them measure, benchmark and report carbon emissions, and improve supply-chain efficiency and environmental performance. SmartWay helps its partners exchange reliable and credible performance data and accelerate adoption of advanced technologies and operational practices.



4. What results have SmartWay partners achieved?

Since 2004, SmartWay partners have eliminated **61.7 million** metric tons of CO₂, **1,070,000** tons of nitrogen oxides and **43,000** tons of particulate matter. They've saved **144.3 million** barrels of oil and **\$20.6 billion** in fuel costs. This equals taking more than **13 million** cars off the road for an entire year.

5. How do SmartWay partners meet customer and stakeholder needs?

In a rapidly changing business landscape, SmartWay partners demonstrate to customers, clients and investors that they are taking responsibility for the emissions associated with moving goods. SmartWay partners are committed to corporate social responsibility and sustainable businesses practices, and are reducing their carbon footprint.



6. How do SmartWay partners benefit North America?



By moving goods in the cleanest, most efficient way possible in the U.S. and Canada, SmartWay partners protect the environment, enhance North America's energy security and foster economic vitality.

7. What additional benefits are there for SmartWay partners?

SmartWay partners are part of an alliance that includes Canada and a global network of Green Freight programs. SmartWay partners can network with their peers and share success stories. They gain access to public events and forums in which partners showcase their achievements. And SmartWay has market incentives, and recognition for top performers.



8. How can my company join SmartWay?

It's easy. Simply enter your freight activity data in a free, downloadable tracking and assessment tool, and submit it to EPA.

Visit epa.gov/smartway to learn more.

When you join SmartWay, you're in good company.

Some of SmartWay's shipper partners.

SHARP

 **Kimberly-Clark**



Walgreens



JCPenney
Every Day Matters



Johnson & Johnson



LOWE'S

Johnson
A FAMILY COMPANY

What some shipper partners say about SmartWay.

"At Kimberly-Clark, we see SmartWay as both good environmental policy and good business. The transportation strategies that SmartWay recommends are saving us fuel, lessening our carbon footprint, and making a big difference in bringing us closer to our sustainability goals."



Stelios Chrysandreas
Transportation Manager, Kimberly-Clark

"We encourage shippers, carriers, and logistics providers to get involved in SmartWay and use it to the maximum because participation will make your operation both more environmentally efficient and more economically effective."



Mike Cole
Senior Director, North America Transportation, Kraft Foods

"We're serious about our responsibility to the environment, which is why we joined the SmartWay Transport Partnership. The framework it provides has enabled us to evaluate, measure and reduce the environmental impact of our transportation operations in a more comprehensive and strategic way. Specifically, SmartWay has helped us reduce fuel usage and greenhouse gas emissions, and improve our operational efficiency."



Kevin J. Igli
SVP and Chief EHS Officer, Tyson Foods

"SmartWay has been a great partner in helping us implement best practices in our environmentally focused fleet management."

Jesus Garciarivas
American Logistics, Hewlett Packard



Truck and rail transportation provides a cost-effective means to transport much of America's freight. There are simple actions that can be taken to make ground freight more efficient and cleaner for the environment. The following technologies and practices can help truck carriers save fuel and money, reduce air pollution, and cut carbon dioxide emissions that contribute to climate change.

Idle Reduction

An idling truck burns nearly one gallon of diesel fuel per hour. Reducing unnecessary idling could save each truck over \$3,000 in fuel costs, reduce air pollution, and cut 19 metric tons of carbon dioxide annually.

- On-board idle reduction systems include auxiliary power units that provide electricity to the cab, direct-fired heaters and coolant systems that provide temperature control, and programmable automatic engine shut-off systems.
- Truck plazas equipped with truck stop electrification systems allow trucks to draw electrical power and in some cases heating, cooling, telecommunication, and Internet hookups from a ground source.

Improved Aerodynamics

Reducing the aerodynamic drag of a typical line-haul truck by 15 percent could cut annual fuel use more than 2,000 gallons, save over \$3,500 in fuel costs, and eliminate 20 metric tons of carbon dioxide.

- Tractor aerodynamics can be improved by adding integrated roof fairings, cab extenders, side fairings, and aerodynamic bumpers. New truck buyers can purchase aerodynamic models with streamlined profiles.
- Trailer aerodynamics can be improved by minimizing tractor-trailer gap, adding side skirts and rear air fairings, and arranging cargo and tarpaulins as low, taut and smooth as possible.
- Single-unit trucks can be improved with air deflector bubbles or by purchasing new streamlined models.

Improved Freight Logistics

Improved logistics can reduce the miles that a truck drives empty. Eliminating 15 percent of a line-haul truck's empty miles could save \$3,000 in fuel and reduce 24 metric tons of carbon dioxide annually.

- Improved logistics include load matching, more efficient routes and delivery schedules, and improved shipping and receiving practices.
- A carrier may employ low-cost options like triangular routing, coordinating loads with other fleets, and checking electronic load boards, or the carrier may purchase freight broker services and logistics software.

Automatic Tire Inflation Systems

Retrofitting a line-haul truck with an automatic tire inflation system could save 100 gallons of fuel annually and reduce tire wear and maintenance, while eliminating one metric ton of carbon dioxide.

- Truck fleets that find it too difficult or expensive to monitor tire pressure on a regular basis should consider installing automatic tire inflation (ATI) systems on drive and trailer tires.
- An ATI system used on a typical line-haul truck can generally pay for itself in just over two years, while decreasing the risk of expensive tire failure caused by under inflation.

Single Wide-base Tires

Specifying single wide-base tires on a new combination truck could save \$1,000 immediately and reap annual fuel savings of 2 percent or more while cutting carbon dioxide by more than four metric tons.

- Single wide-base tires save fuel by reducing vehicle weight, rolling resistance and aerodynamic drag. These tires can also improve tank trailer stability by allowing the tank to be mounted lower.
- There are several single wide-base tire models from which to choose, plus these tires can be retreaded.

Driver Training

Even highly experienced drivers can boost their skills with training aimed at raising fuel economy by 5 percent or more, which would save \$1,200 in annual fuel costs and cut eight metric tons of carbon dioxide.

- Effective driver training programs can improve fuel economy by 5 percent or higher. Some fleets report fuel economy gains of up to 20 percent.
- Among other techniques, drivers learn progressive shifting, engine speed optimization, idle reduction, smoother braking and acceleration, anticipatory driving, speed control, and optimal gearing.

Low-Viscosity Lubricants

When used in a line-haul truck, synthetic engine and drive train lubricants can improve fuel economy by up to 3 percent, saving as much as 500 gallons of fuel and cutting up to five metric tons of carbon dioxide annually.

- Low-viscosity synthetic or semi-synthetic lubricants flow more easily and withstand the extreme pressure of engine, transmission, and drive train systems better than conventional mineral oil blends.
- The operator of a typical line-haul truck can save up to \$500 annually by switching to low viscosity lubricants, with additional savings possible due to reduced wear and maintenance of truck systems.

Intermodal Shipping

Intermodal freight transport combines the best attributes of both truck and rail shipping. Over long distances using intermodal can cut fuel and carbon dioxide by 65 percent, compared to truck-only moves.

- Carriers can maximize resources by using freight trains to handle the long-distance portion of a freight move, especially for less time-sensitive cargo that is shipped over 500 miles.
- Intermodal options include trailer on flat car (TOFC), container on flat car (COFC), double stack service, rail bogeys and dual-mode trailers, and rail platforms that can accommodate standard trailers.

Longer Combination Vehicles

A freight truck using longer or multiple trailers can haul more cargo than a standard combination truck, potentially saving up to \$5,000 in fuel costs and 34 tons of carbon dioxide on a ton-mile basis annually.

- Common longer combination vehicle (LCV) configurations include the Rocky Mountain Double, Turnpike Double, Triples, and Eight-Axle Twin Trailers.
- A motor carrier operating in states that permit LCVs can reduce the number of trips required to haul a given amount of freight—saving time, money, and emissions.

Reducing Highway Speed

A line-haul truck with 90 percent highway miles that reduces its top speed from 70 to 65 miles per hour could cut its annual fuel bill nearly \$1,500 while eliminating almost 10 metric tons of carbon dioxide.

- Reducing highway speed also reduces engine and brake wear, which cuts down the cost and frequency of maintenance service, and keeps revenue earning equipment on the road longer.
- Any truck carrier can adopt a speed management policy at little or no cost. The most successful speed reduction policies combine electronic engine controls with driver training and incentives.

Weight Reduction

Reducing 3,000 pounds from a line-haul truck by using lighter-weight components could save up to 300 gallons of fuel annually and eliminate up to three metric tons of carbon dioxide.

- Aluminum alloy wheels, axle hubs, clutch housings, and cab frame can trim hundreds of pounds from a truck tractor. Downsizing to a smaller engine can also provide significant weight savings.
- Thousands of pounds can be reduced from a truck trailer using aluminum roof posts, floor joists, upright posts, and hubs and wheels.

Hybrid Powertrain Technology

Hybrid vehicles can provide roughly \$2,000 in fuel savings and cut carbon dioxide by up to 12 metric tons per year when used in stop-and-go freight applications like parcel delivery service.

- Hybrid vehicles have two propulsion power sources, making it possible to capture energy otherwise lost during braking and provide boost to the main engine which in turn can run more efficiently.
- Most hybrid vehicles use an internal combustion engine for the main power source with various secondary power and energy storage configurations, including electric and hydraulic systems.

Renewable Fuels

In addition to benefiting the environment and helping reduce U.S. dependence on foreign oil, using biodiesel can provide more lubricity which may help extend a vehicle's engine life. Most diesel engines can run on biodiesel without needing any special equipment, and when running on biodiesel, will have similar horsepower and torque as conventional diesel.*

- Biodiesel provides significant reductions in greenhouse gas (GHG) emissions -- B100 reduces lifecycle GHG emissions by more than 50 percent, while B20 reduces emissions by at least 10 percent.
- Biodiesel also reduces emissions of carbon monoxide, particulate matter, sulfates, hydrocarbons and air toxics.
- Biodiesel produced from crops grown in the U.S. can help America's family farmers while bolstering America's energy security.

* Always check with your engine manufacturer before switching to biodiesel, and look for biodiesel that meets applicable ASTM and BQ9000 requirements.

Driver Training

A Glance at Clean Freight Strategies

Energy and Fuel Savings

Gallons Saved
=
794 gallons

CO₂ Savings
=
8.06 Metric tons

Increase in Fuel Economy
=
5%

New MPG
(original of 6.0 mpg)
=
6.3 mpg

Reduction in Fuel Consumption
=
5%

Fuel Cost Savings
=
\$3,015



Driver training programs can help trucking companies save fuel and reduce greenhouse gas emissions by increasing drivers' skills, knowledge, and performance. A driver training program that improves fuel economy by 5 percent could save over \$3,000 in fuel costs and eliminate 8 metric tons of greenhouse gas emissions per truck each year.

What is the challenge?

Even highly experienced truck drivers can boost their skills and enhance driving performance through driver training programs. Training that targets fuel efficiency can help drivers recognize and change driving habits that waste fuel. For example, driving 65 mph instead of 55 mph can use up to 20 percent more fuel, idling a typical heavy-duty engine burns about 0.8 gallons of fuel per hour, and driving with the engine rpm too high can waste several gallons of fuel each hour. Other common habits that reduce fuel economy are frequent or improper shifting, too-rapid acceleration, too-frequent stops and starts from failing to anticipate traffic flow, and taking circuitous routes.

A few simple changes in driving techniques can produce sizable fuel savings of 5 percent or more. A Canadian study estimates that many fleets could achieve a 10 percent fuel economy improvement through driver training and monitoring. A study for the European Commission estimates that an annual one-day driver-training course will improve truck fuel efficiency by 5 percent.

What is the solution?

Well-trained drivers can reduce fuel consumption by applying a number of simple techniques.

- Use cruise control where appropriate
- Coast whenever possible
- Brake and accelerate smoothly and gradually

Next Steps

1 Trucking firms can consider implementing driver training programs to reduce fuel costs and teach drivers fuel saving techniques through employers, vocational schools, and for-profit training organizations.

2 Electronic engine monitors can be installed to review drivers' operating patterns and benchmark individual performance over time. Create successful incentive programs that are simple to administer by paying bonuses and setting realistic goals. To provide additional motivation, training can be combined with an incentive program to reward drivers for enhanced performance.

3 Fleets can contact their national or local trucking organizations for more details on improving driver performance and establishing a driver incentive program. Also contact truck dealers or equipment vendors for information on engine monitors and other fuel-saving devices.

Driver Training

- Progressive shifting (upshift at the lowest rpm possible)
- Limit unnecessary truck idling
- Start out in a gear that doesn't require using the throttle when releasing the clutch
- Limit unnecessary shifting; block-shift (go from, for example, 2nd gear to 5th gear)
- Drive at the lowest engine speed possible
- Reduce parasitic energy losses by limiting the use of accessories.

Savings and Benefits

Fleets that improve fuel economy by at least 5 percent through driver training and monitoring programs can save more than \$3,000 per truck each year in fuel costs and eliminate 8 metric tons of carbon dioxide emissions per truck each year. Driver training can generate larger efficiency gains for vehicles in urban service, where shifting practices have more influence on fuel economy. For a typical long-haul truck, the initial cost of training and the purchase of related equipment such as an electronic engine monitor and recorder could be recouped within 2 years from fuel cost savings. Trucking companies can realize even greater fuel and maintenance savings by using technologies that limit truck idling and highway speed.

Idle Reduction

A Glance at Clean Freight Strategies

Energy & Fuel Savings

2400 Idling Hours

Gallons Saved
=
1440 gallons

CO2 Savings
=
14.6 Metric tons

Fuel Cost Savings
=
\$5,472

1600 Idling Hours

Gallons Saved
=
960 gallons

CO2 Savings
=
9.7 Metric tons

Fuel Cost Savings
=
\$3,648



Reducing unnecessary truck idling can save fuel, reduce greenhouse gas emissions, cut air pollution, and save money. A typical long-haul combination truck that eliminates unnecessary idling could save over 900 gallons of fuel each year. Saving this much fuel annually would effectively remove 9 metric tons of carbon dioxide, reduce nitrogen oxide and particulate matter emissions, save \$3,600 in fuel costs, and lower engine maintenance costs for the truck.

What is the challenge?

Many long-haul truck drivers idle their engines during rest periods to:

- provide heat or air conditioning for the sleeper compartment
- keep the engine warm during cold weather to avoid trouble with cold starts
- generate electrical power for appliances

Studies by EPA and others suggest that long-haul combination trucks often idle overnight between 5 and 8 hours per day, over 300 days per year. Typical combination trucks consume about 0.8 gallons of diesel fuel during each hour of idling, using between 900 and 1,400 gallons of fuel each year per truck.

Today's diesel engines do not need to idle for long periods of time before and after driving. Using a heavy-duty truck engine to power cab amenities is inefficient. It consumes fuel unnecessarily, increases fuel costs, and generates emissions that contribute to climate change and air pollution. Unnecessary engine idling also contributes to engine wear, which increases truck maintenance costs, and shortens engine life.

What is the solution?

Several technological options can assist drivers in reducing truck idling

- Auxiliary Power Units (APUs) are mounted externally on the truck cab. An APU typically consists of a small combustion engine and generator combination that can provide power to the truck when the main engine is shut off. Electricity from an APU can be used to power heating, air conditioning, and electrical accessories for the cab and sleeper.
- Automatic Engine Shutdown Systems start and stop the truck engine automatically to maintain a specified cab temperature or to maintain minimum battery charge. Drivers typically activate the system in the evening and program a desired temperature range. Drivers can also program the system to shut down after a specified period of idling time.
- Direct Fired Heaters are small, lightweight, and efficient fuel-fired devices mounted in the

Next Steps

1 Truck fleets can examine engine-operating records to determine the percent of time spent idling to determine potential fuel and cost-saving benefits.

2 Truck fleets can determine the idle reduction method that best fits their fleets.

3 Truck fleets can also check the availability of truck stop electrification facilities along frequent routes.

Idle Reduction

Energy & Fuel Savings

600 Idling Hours

Gallons Saved
=
360 gallons

CO2 Savings
=
3.6 Metric tons

Fuel Cost Savings
=
\$1,368

cab of a truck. The direct fired heater provides heat for driver comfort in the cab. This technology does not include any air conditioning capabilities.

- Truck Stop Electrification allows trucks to use electrical power from an external source. At properly equipped locations, drivers can shut off the main truck engine and plug into an electrical outlet that provides power for heaters, air conditioners, marker lights, and other accessories. Trucks need to be equipped with the appropriate internal wiring, inverter system, and HVAC system to take advantage of truck stop electrification.
- Advanced Truck Stop Electrification also provides electricity from an external source, but doesn't require the truck to be equipped with special systems. Truck parking bays are installed with equipment that provides the cab with electrical power, heating, cooling, and other amenities like telecommunication hook ups, through an external console that fits into the truck's window frame. The truck-side console has temperature controls, an air supply and return pipe, a credit card reader, keypad, and a 100-Volt AC outlet.

Savings and Benefits

The amount of idling varies widely among trucks by season, type of operation, and driver practices. A typical long-haul combination truck can idle between 1,600 and 2,400 hours per year, which would use about 900 and 1,400 gallons of fuel, respectively. Saving fuel annually through idle reduction by installing an APU would remove about 9 to 14 metric tons of carbon dioxide, reduce nitrogen oxide and particulate matter emissions, save between \$3,600 and \$5,500 in fuel costs, and lower engine maintenance costs. A short-haul truck can save 360 gallons per year, saving \$1,300 when using an idle reduction technology. Truck stop electrification can potentially eliminate all engine idling. However, because the systems can be used only at stations outfitted with appropriate equipment, not all the potential savings can be obtained immediately.

Low Rolling Resistance Tires

A Glance at Clean Freight Strategies

Energy and Fuel Savings

Gallons Saved
=
500 gallons

CO2 Savings
=
5.08 Metric tons

Reduction in Fuel Consumption
=
3 %

New MPG
=
6.19 mpg

Fuel Cost Savings
=
\$1,900



Specifying single wide or low rolling resistance dual tires on a new combination truck could save \$1,900 in fuel costs, and cut almost 5 metric tons of greenhouse gas emissions per year. Fuel savings of 3% or higher begin immediately.

What is the challenge?

Tire rolling resistance accounts for nearly 13% of combination truck energy use. Most combination trucks have non low rolling resistance dual tire assemblies on the drive and trailer axles, with two sets of wheels and tires at each end of an axle. This configuration increases rolling resistance compared to single wide tires or low rolling resistance dual tires and wheels.

What is the solution?

A variety of tire options can improve truck fuel efficiency. One promising strategy is to use low rolling resistance tires either single wide or energy efficient dual tires. A single wide tire and wheel is lighter than two standard tires and wheels. Total weight savings for a typical combination truck using single wide-base tires on its drive and trailer axles ranges from 800 to 1,000 pounds. The weight savings would reduce fuel consumption, or increase cargo capacity for trucks that are weight-limited. Single wide tires have lower rolling resistance and aerodynamic drag, and generate slightly less pass-by noise than do, dual tires. Another benefit to using single wide-base tires is fewer tires need to be replaced. There are three types of wheels steel, low weight steel, and aluminum, with decreasing weight respectively. The less weight the rim holds the better fuel economy the truck will get.

Single wide tires may offer other benefits in combination truck stability. Single wide tires can improve the stability of tank trailers by allowing the tank to be mounted lower.

Materials used to reduce tire rolling resistance could decrease tire tread life slightly. However, in a test of 15 fleets driving 57 million miles using its latest wide-base tire models, one manufacturer reported that the tires wear at a rate comparable to conventional tires.

Next Steps

1 Fleet owners should consider purchasing tractors and trailers with single wide and energy efficient dual tires on their next new truck purchases.

2 Truck Fleets with non-tandem axle combination trucks should check "inch-width" laws in their states because wide-base tires may not comply. The new generation of wide-base tires has a section width of up to 17.5 inches, so these tires comply with pavement weight laws in all 50 states, for a typical tandem axle combination truck.

3 Single wide tire and wheel assemblies as a new fitment are less expensive than dual tire assemblies and provide immediate fuel economy savings. For more information, talk to your tire and truck dealers or contact the American Trucking Associations' Technology and Maintenance Council (www.trucking.org).

Savings and Benefits

Recent tests of low rolling resistance tires indicate a potential fuel economy improvement of 2 to 5 percent compared to conventional dual tires. By using low rolling resistance tires, a combination long-haul truck could save over 500 gallons of fuel per year and cut emissions of carbon dioxide (the most common greenhouse gas) by more than 5 metric tons annually. Most importantly, these environmental benefits can often be achieved while cutting costs.

Improved Aerodynamics

A Glance at Clean Freight Strategies

Using a streamlined-profile tractor with aerodynamic devices can improve fuel economy by over 3 percent and will reduce fuel costs by over \$2,000. When adding an aerodynamic trailer, you can get up to an 11 percent increase in fuel economy, saving 16 metric tons of carbon dioxide.

What is the challenge?

Aerodynamic drag (wind resistance) accounts for most truck energy losses at highway speeds. Reducing drag improves fuel efficiency. The longer the drive and the higher the speed, the greater the potential efficiency benefits become. Manufacturers have made significant progress over the past two decades in reducing the drag coefficient (a measure of wind resistance) of a typical freight truck from about 0.8 to about 0.65 – an improvement of nearly 20 percent. Additional efforts to improve aerodynamics could result in a further 25 percent reduction in the drag. This could have a significant impact on fuel economy. For example, cutting drag by 20 percent could boost fuel economy up to 15 percent at highway speed.

What is the solution?

A number of options exist to improve aerodynamics and improve fuel efficiency.

Tractor Aerodynamics

Truck tractor aerodynamic options:

- Roof fairings (an integrated air deflector mounted on the top of the cab)
- Side extender fairings (to reduce the gap between the tractor and the trailer)
- Side tank fairings
- Aerodynamic front bumper (to reduce air flow beneath the truck).
- Aerodynamic mirrors

Truck manufacturers offer aerodynamic models that include a streamlined front profile, sloped hood, and a full package of add-on devices. Selecting these features for a typical tractor model can improve fuel economy by over 3 percent. However when improving a classic combination truck with no aerodynamic features, one can see up to a 15 percent increase in fuel economy.

Next Steps

1 Trucking firms can specify aerodynamic options when purchasing a new truck and consider adding aerodynamic devices to existing trucks and trailers. Some aerodynamic options are standard on many trucks, like a streamlined hood. Others can be purchased and installed for an additional cost.

2 For more information on aerodynamic devices, contact your local truck dealer, truck equipment vendor, or trucking association.

Energy & Fuel Savings

Aerodynamic Long Haul Combination Truck

Gallons Saved
=
1,651 gallons

CO2 Savings
=
16.7 Metric tons

Increase in Fuel Economy
=
11%

New MPG
(original 6 mpg)
=
6.6 mpg

Fuel Cost Savings
=
\$6,276



Improved Aerodynamics

Trailer Aerodynamics

Truck trailer aerodynamic options:

- Gap Reducer (these devices affix to the front of the trailer to minimize the gap between the tractor and trailer, minimizing air turbulence in turn)
- Side Skirts (these panels hang down from the sides of a trailer at the bottom edge to enclose the open space between the rear wheels of the tractor and the rear wheels of the trailer)
- Cargo Configuration (reduce drag by arranging cargo as low and smooth as possible)
- Wheelbase and fifth-wheel settings (positioning the trailer as close to the rear of the tractor as possible to reduce tractor-trailer gap). For freight carried on flat bed trailers, securing loose tarpaulins and closing the curtains on curtain-sided trailers can improve fuel economy by up to 2.5 percent and 4.5 percent, respectively.

Gap reducers that decrease the trailer gap from 45 to 25 inches can improve fuel economy as much as 2 percent. According to the manufacturers, the addition of trailer side skirts can also improve fuel economy by up to 5 percent.

Single Unit Truck Aerodynamics

Single unit truck aerodynamic options

- Streamlined front profile with sloped hood to reduce drag
- Rounded air deflector can be added to van-style bodies to reduce drag

When using rounded air deflectors, manufacturers claim fuel savings of up to 5 percent, which reduces annual fuel use by about 80 gallons and saves over \$100 in fuel costs. Single unit trucks with higher annual mileage could realize even larger benefits.

Savings and benefits

An aerodynamic long-haul combination truck can realize a fuel economy increase of 11 percent, as compared to a typical long-haul combination truck. This would result in about 1,600 gallons saved, reducing fuel costs by over \$6,000 and saving 16 metric tons of carbon dioxide. A single unit aerodynamic truck improves fuel economy by 5 percent, saving 76 gallons and nearly 1 metric ton of carbon dioxide. The initial expense of installing aerodynamic features can be quickly recouped through fuel savings.

Aerodynamic Trailer Annual Savings

Fuel Economy Increase	3.6 %
New MPG (original MPG of 6)	6.2 mpg
Fuel Cost Saving	\$2,200

Single Unit Truck Annual Savings

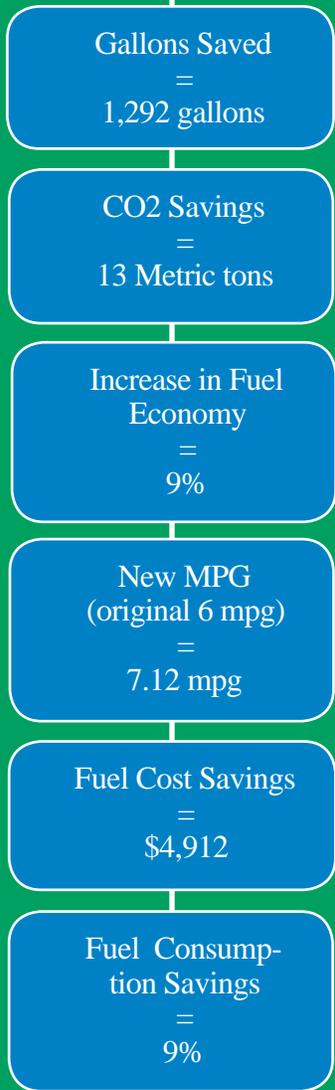
Fuel Economy Increase	5%
New MPG (original MPG of 8.54)	8.97 mpg
Gallons Saved	76 gallons
CO ₂ Savings	0.76 metric tons
Fuel Cost Saving	\$285

Reducing Highway Speed

A Glance at Clean Freight Strategies

Reducing highway speed by 5 miles per hour can cut fuel use and greenhouse gas emissions by about 7 percent while extending the life of a truck's engine, tires and brakes. An example is a long-haul truck that reduces its top speed from 65 to 60 miles per hour saves over 1,200 gallons of fuel, cutting its annual fuel bill by \$4,900 while eliminating nearly 13 metric tons of greenhouse gas reductions.

Energy and Fuel Savings



What is the challenge?

A typical combination truck spends 65 percent or more of its operating time at highway speeds. Line-haul trucks spend even more time on highways. The impact of speed on fuel economy depends upon many factors including vehicle aerodynamics, engine speed and operating conditions. As a general rule of thumb, increasing speed by one mile per hour reduces fuel economy by about 0.1 miles per gallon. Excessive speed also leads to higher maintenance costs of by increasing wear on the engine, tires and brakes.

What is the solution?

Speed management is an easy and effective way to save fuel, reduce emissions, and prevent excess wear. A trucking firm or driver can adopt a speed policy at little or no cost. The most successful speed management policies combine technology (e.g., speed settings on electronic engine controls) with driver training and incentive programs to encourage drivers to maintain speed limits. Most new truck engines are electronically controlled so the cost of changing maximum speed settings on these engines is negligible.

Savings and benefits

Although fuel savings may vary by vehicle and speed range, a combination truck driving 55 miles per hour uses up to 7 percent less fuel than a similar truck driving 65 miles per hour. Other analyses indicate that reducing the maximum speed of a typical long-haul truck from 65 miles per hour to 60 miles per hour could save about \$4,900 in annual fuel costs.

Reducing speed can cut truck maintenance costs and reduce the frequency of maintenance work. The time between engine overhauls, for example, is directly related to fuel use. Holding

Next Steps

1 A trucking company interested in saving fuel and lowering the cost and frequency of its equipment maintenance should consider adopting a speed management policy, particularly if its trucks spend considerable time on highways.

2 A number of well-managed truck fleets have programs in place to reduce highway speed and promote safe driving by using driver training, incentive programs, and electronic engine controls. A trucking fleet interested in following these examples may learn more by reading articles and fleet profiles in truck industry publications.

3 When purchasing new vehicles, a trucking company may also consider specifying equipment designed to optimize truck performance at lower maximum speeds. Trucking companies and drivers interested in learning more about the effects of speed on fuel economy may contact truck and equipment manufacturers or their state and national trucking associations.

Reducing Highway Speed

maximum speeds at 60 rather than 70 miles per hour reduces engine wear and extends time between engine rebuilds, saving hundreds of dollars per truck each year while keeping revenue-earning equipment on the road. Fleets that adopt speed policies report additional savings due to fewer brake jobs and other service work.

Reducing highway speed does increase travel time. Assuming ideal conditions, a trucker driving 60 miles per hour instead of 65 miles per hour could spend about eight percent longer on the road. Of course, the time difference may be less, depending upon road conditions, weather, and traffic congestion and road construction. If a trucking company pays its drivers by the mile or by the load rather than by the hour, reducing speed should not increase labor costs. It could reduce the productivity of trucking operations since slower trucks may carry fewer loads. However, the benefits of lower fuel and maintenance costs combined with less frequent out-of-service work and driver safety considerations may well outweigh any costs associated with an increase in delivery time



Affiliate Agreement

EPA's SmartWay Transport Partnership is a public/private collaboration that helps freight shippers, carriers, and logistics companies improve fuel efficiency, reduce emissions and save money. Affiliate organizations play a key role in supporting these objectives.

With this agreement, _____ joins EPA's SmartWay Transport Program as a SmartWay Transport Affiliate (please check Affiliate category).

- SMARTWAY NON PROFIT**
Trade and professional associations; membership, nongovernmental organizations; academic institutions and governmental agencies that educate their constituents about the SmartWay program.
- SMARTWAY TRACTOR/TRAILER DEALERSHIP**
Dealerships promote and sell SmartWay Designated tractors or trailers and SmartWay verified technologies
- SMARTWAY LEASING COMPANY**
Lease SmartWay Designated vehicles, tractors or trailers. Promotes the sale or lease of SmartWay Designated vehicles, tractors or trailers to dealerships and/or multiple franchises.
- SMARTWAY TRUCK STOPS/TRAVEL PLAZAS**
Commercial facility that provides fuel, parking and other services to long-haul trucks. Agrees to educate their customers about SmartWay and reducing long duration idling.

If your organization does not meet one of the above Affiliate types, e-mail smartway_transport@epa.gov for information on joining the SmartWay community. Put "SmartWay Community" in the subject line.

Following are suggested activities to help Affiliates support and promote SmartWay goals:

- Provide a link to the SmartWay Transport website on the Affiliate's website.
- Inform and educate the Affiliate's members, constituents, or customers about specific components of SmartWay Transport Program.
- Distribute, feature and promote educational materials about the SmartWay Transport Program.
- Recruit new Partners from the Affiliate's membership or constituents, or assist other Affiliates with recruiting.
- Publish articles or other informational materials.
- Identify and provide opportunities for EPA to communicate with the Affiliate's members.
- Train your sales staff on the benefits of SmartWay verified technologies.
- Inform your customers about the availability of innovative financing opportunities through SmartWay materials.

In return, EPA agrees to:

- Educate SmartWay Transport Partners about the Affiliates' involvement.
- Publicize Affiliate's participation through SmartWay Transport Program events, the website, and listing in related educational, promotional and media materials. EPA will obtain written consent from an Affiliate before publishing its name in a context beyond increasing public awareness of its participation as described above.
- Provide Affiliate with materials to market the SmartWay Transport Program including program materials, posters, articles for journals, presentations and talking points.
- Allow Affiliate to use the SmartWay Transport name in the promotion of the SmartWay Transport Program and in the Affiliate's activities for participating in the SmartWay Transport Affiliate Program, provided the name is used consistently with this Agreement and is never used to imply EPA endorsement of Affiliate, its products or services.
- Make EPA representatives available to speak about the SmartWay Transport Program at Affiliate's conferences and meetings.
- Assist Affiliate in achieving program goals, by working to address challenges, create incentives, and provide technical assistance and support.

General Terms:

The Affiliate agrees that it will not claim or imply that its participation in the SmartWay Transport Affiliate Program constitutes EPA approval or endorsement of anything other than the Affiliate's commitment to the program. The Affiliate will not make statements or imply that EPA endorses the purchase or sale of the Affiliate's products and services or the views of the organization.

Affiliate agrees to indicate EPA's ownership of "SmartWay Transport®" by using the ® symbol when using the name and by including the following statement on the web site, report, or other material where the term is used: "SmartWay Transport®" is a registered service mark of the U.S. Environmental Protection Agency". Affiliate also agrees to abide by the terms of this Agreement pertaining to the use of the SmartWay Transport name and acknowledges that EPA may terminate this Agreement if Affiliate uses the SmartWay Transport name inconsistently with these terms.

Either party can terminate the Agreement at any time without prior notification or penalties or any further obligation. EPA and the Affiliate agree not to comment publicly regarding the withdrawal of an Affiliate. Upon termination, Affiliate agrees to no longer use the SmartWay Transport name or any variation of the SmartWay Transport mark.

All commitments made by EPA are subject to the availability of appropriated funds. The Affiliate understands that it bears its own costs for participation in this program, that it participates without recourse to EPA, and agrees not to submit a claim for compensation to EPA or any other Federal agency on the basis of this agreement.

Nothing in this agreement exempts the Affiliate from EPA regulations or policies relating to competition for financial assistance or procurement contracts.

This Agreement does not direct or apply to any person outside Affiliate and EPA and therefore does not create any right or benefit, substantive or procedural, enforceable by law or equity against the Affiliate or EPA, their officers or employees, or any other person.

The parties enter into this Agreement voluntarily. Thus, except as explained in the preceding, EPA is not imposing any legally-binding obligations on Affiliate or any other entity through this Agreement, nor is Affiliate imposing any legally-binding obligations on the EPA or on any other entity through this Agreement.

Authorized Affiliate Official:

The undersigned, on behalf of _____ understands and agrees to the terms of the EPA SmartWay Transport Affiliate Program.

Signature

Title

Print Name

Date

Designated Affiliate Representative

Name _____ Title _____

Address _____ City _____

State _____ Zip _____

E-mail _____ Phone _____ Fax _____

Fax completed agreement to EPA SmartWay Transport Partnership (734) 214-4052

SAVING FUEL & REDUCING EMISSIONS

A typical truck retrofit of idling controls and tractor/trailer aerodynamics can offer the following benefits:*

ECONOMIC

Save up to \$15,000 on fuel cost

Claim certain tax credits and incentives that might be available



ENERGY SECURITY

Reduce dependence on foreign oil

Save up to 5,000 gallons of fuel per year

Reduce consumption of a limited resource



ENVIRONMENT

Reduce harmful emissions

Improve visibility

Eliminate 289 pounds of toxic diesel particulate matter

Eliminate 5,000 pounds of nitrogen oxides (NO_x), a key component of ground-level ozone

Mitigate climate change



PUBLIC HEALTH

Eliminate \$5,400 in health care costs

Reduce asthma attacks

Reduce respiratory illness



*Based on EPA diesel emissions quantifier, fuel costs of \$3 per gallon, with a lifetime benefit based on seven years remaining life on a 1994 model year truck.

WHO WE ARE

The North Central Texas Council of Governments (NCTCOG), created in 1964, is a voluntary association of local governments that serves a 16-county area in North Central Texas. NCTCOG is responsible for regional planning and coordination. This includes work to reduce ozone pollution and improve air quality.

NCTCOG's air quality strategies seek to reduce emissions in a variety of ways, from energy and fuel efficiency to advancing clean technologies and encouraging changes in daily behavior. Such strategies are being implemented throughout the region to reduce emissions from different types of sources. Most programs target mobile source emissions due to the fact that transportation-related activities account for nearly half of all ozone-causing pollution in North Central Texas.

NCTCOG

Transportation Department

PO Box 5888 | Arlington, TX 76005

P: 817-608-2354 | F: 817-608-2358

nctcog.org/SMARTER | SMARTER@nctcog.org

SMARTER

Saving Money and Reducing Truck Emissions

SMARTER

Saving Money and Reducing Truck Emissions

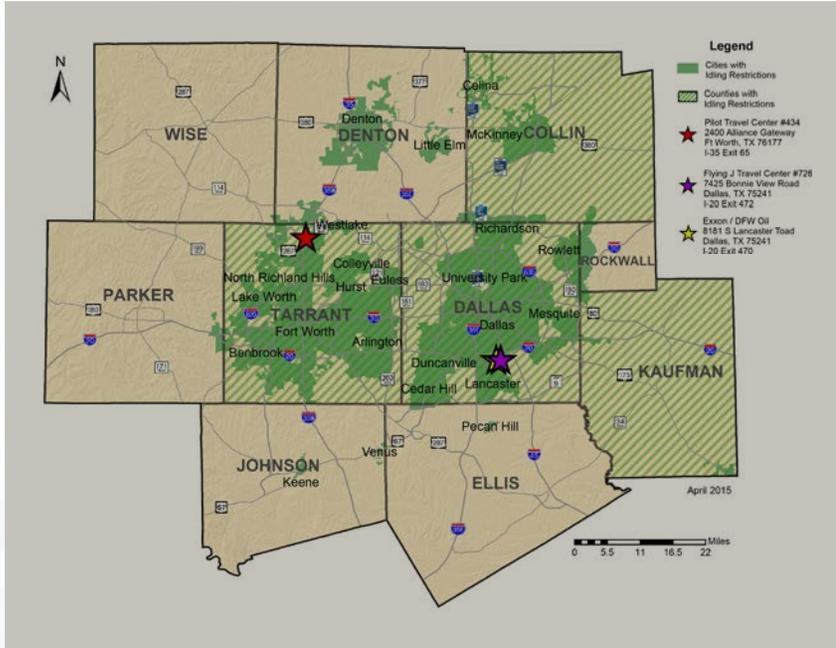


North Central Texas
Council of Governments



Image source: Thinkstock

ELECTRIFIED TRUCK STOPS



SAVE FUEL, MONEY AND THE ENVIRONMENT WITH A SMARTWAY TRUCK

Image source: United States Environmental Protection Agency



PROGRAM INFORMATION

NCTCOG is partnering with the U.S. Environmental Protection Agency (EPA) and private sector transportation companies in a new program designed to help companies and drivers Save Money and Reduce Truck Emissions (SMARTE).

The SMARTE program's mission is to promote fuel savings and emissions reduction for the trucking industry. Conserving natural resources saves dollars and will help bring 10 North Central Texas counties into compliance with EPA air quality standards and enhance public health.

Through this program, NCTCOG provides outreach and information on regional programs that are relevant to the trucking industry and can help reduce fuel costs. Examples include the Dallas-Fort Worth Clean Cities program, Clean Fleet Policy and SmartWay Transport Partnership. SMARTE also has a heavy emphasis on promoting EPA SmartWay-verified technologies.

The SMARTE program provides information on the following strategies and locates dealers and installers:

IDLE REDUCTION - APPROX. 5% FUEL SAVINGS

A variety of on-board idle reduction devices and truck stop electrification systems allow engine-off cab comfort, save up to a gallon of fuel per hour and reduce engine wear.

WEIGHT REDUCTION - 1.5%

Aluminum alloy wheels, axle hubs, clutch housings, and cab frame can trim hundreds of pounds. Thousands of pounds can be reduced from a trailer using aluminum roof posts, floor joists, upright posts, hubs and wheels.

LOW ROLLING RESISTANCE TIRES - 3%

Tires save fuel by reducing vehicle weight and rolling resistance.

TIRE PRESSURE MONITOR SYSTEMS - 1%

Proper tire inflation improves fuel efficiency, extends tire life and enhances handling while decreasing the risk of tire failure.

FLEET MODERNIZATION - 10% TO 20%

When buying newer equipment, purchasing a truck manufactured after 2007 can reduce diesel particulate emissions by 85% and nitrogen oxides (NO_x) by 25%. Trucks manufactured before 1994 can emit 100 times the amount of particulate matter and NO_x that a new truck produces.

DRIVER TRAINING - 20%

Even highly experienced drivers can boost their fuel economy and become more efficient by using fuel reduction strategies.

IMPROVED AERODYNAMICS - 9%

Tractor and trailer aerodynamics can be improved by adding cab extenders, side fairings, side skirts and rear air dams.

NCTCOG.ORG/SMARTTE

Image source: Thinkstock

North Texas Idling Restrictions



What is the Rule?

Vehicles with a gross vehicle weight rating greater than 14,000 pounds may not idle for more than five minutes (30 minutes for buses) in cities and counties that have adopted idling limitations set by the Texas Commission on Environmental Quality. This restriction is in effect year-round.

Why is it Important?

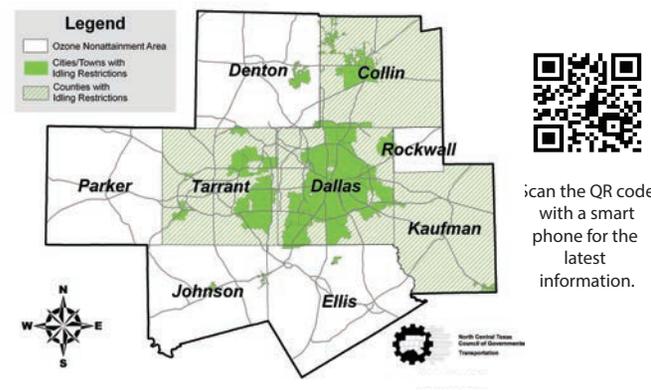
- Excessive idling is responsible for:
- Annual emissions of 11 million tons of carbon dioxide, 200,000 tons of nitrogen oxides, and 5,000 tons of particulate matter from diesel exhaust
 - Annual fuel consumption of more than one billion gallons
 - Increased engine-maintenance costs
 - Decreased engine life
 - Increased noise pollution
 - Driver health problems due to less rest
 - Public health problems caused by diesel exhaust

How to Reduce Idling

- Alternative technologies allow drivers to be comfortable and safe, save money on fuel, and reduce emissions. Some technologies include:
- Automatic engine shut-down and start-up
 - Battery power
 - Auxiliary power units and generator sets
 - Truck stop electrification

For technology funding opportunities, visit www.EngineOffNorthTexas.org.

Local Government Participation in North Texas



Are There Exemptions to the Rule?

- The idling rule does not apply to:
- A military, emergency, law enforcement, or armored vehicle
 - A vehicle being used as airport ground support equipment
 - The owner of an idling vehicle that is leased or rented to persons not working for the owner
 - A vehicle idling due to traffic congestion
 - A motor running to power mechanical operations or for diagnostic or maintenance purposes
 - A vehicle idling solely for the purpose of defrosting a windshield
 - A vehicle idling to ensure employee health and safety during roadway construction or maintenance
 - A vehicle idling to ensure passenger safety and comfort in commercial and public-transit vehicles (30-minute limit)
 - A person using the sleeper berth while on a government-mandated rest period and not within two miles of a facility offering external heating and A/C connections



Restricciones a los motores al ralentí en el Norte de Texas

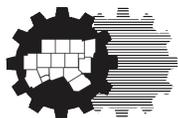
WARNING

5 MINUTE IDLE LIMIT
BUSES – MAXIMUM 30 MINUTES



STATE CODE 30 TAC 114.512
www.EngineOffNorthTexas.org

Reporte un vehículo con
el motor al ralentí:
www.EngineOffNorthTexas.org
1-877-NTX-IDLE



North Central Texas
Council of Governments

¿Cuál es el reglamento?

Los vehículos con la clasificación de peso bruto más de 14,000 libras (6.5 ton.) no podrán permanecer con el motor al ralentí por más de cinco minutos (autobuses - 30 minutos) en las ciudades y condados que hayan adoptado límites de tiempo para motores al ralentí establecidas por la Comisión de Calidad Ambiental de Texas. Esta restricción permanece en efecto todo el año.

¿Por qué es importante?

El exceso de motores al ralentí son responsables por:

- Emitir contaminantes anuales equivalentes a 11 millones de toneladas de bióxido de carbono, 200,000 toneladas de óxidos de nitrógeno y 5,000 toneladas de materia en partículas provenientes del tubo de escape
- El consumo anual de combustible que excede un billón de galones
- El incremento de los costos de mantenimiento del motor
- La disminución de la vida útil del motor
- El incremento del ruido contaminante
- Los problemas de salud de los conductores por la falta de descanso
- Los problemas de salud pública causados por la descarga del diesel quemado

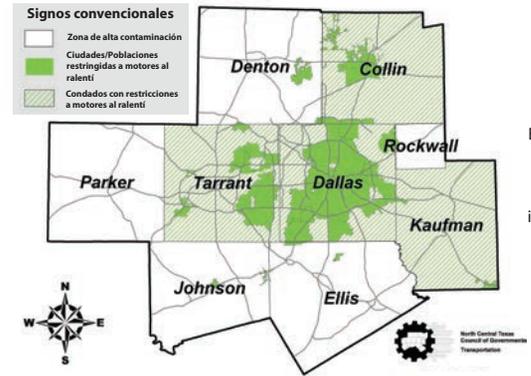
Cómo disminuir motores al ralentí

Tecnologías alternativas les permiten a los conductores sentirse cómodos y seguros, ahorrar dinero en combustible y disminuir los contaminantes. Entre algunas de las tecnologías están:

- Apagar y encender el motor automáticamente
- Energía de batería
- Las unidades auxiliares de energía y equipos generadores de electricidad
- La electrificación de las zonas de descanso para camiones

Para oportunidades para financiación de tecnologías, visite la página www.EngineOffNorthTexas.org.

Participación de los gobiernos municipales en el Norte de Texas



Escanee el código QR con un Smartphone o teléfono inteligente para la más reciente información.

¿Hay excepciones al reglamento?

El reglamento de los motores al ralentí no es aplicable a:

- Los vehículos militares, de emergencia, policíacos o blindados
- Algún vehículo en uso como equipo de apoyo en plataformas aeroportuarias
- El propietario de un vehículo con el motor al ralentí que haya rentado o alquilado a personas que no sean empleados del propietario
- Un vehículo con el motor al ralentí debido a congestión de tránsito
- Un motor al ralentí para energizar operaciones mecánicas o para efectos de diagnóstico o mantenimiento
- Un vehículo con el motor al ralentí únicamente con el propósito de deshelar el parabrisas
- Un vehículo con el motor al ralentí para asegurar la salud y seguridad de un empleado durante la construcción o mantenimiento de cualquier camino
- Un vehículo con el motor al ralentí para asegurar la seguridad y comodidad de los pasajeros en vehículos comerciales y transporte público (limitado a 30 minutos)
- Una persona utilizando el dormitorio vehicular durante un periodo de descanso obligado por el gobierno y que no esté a dos millas (5 km.) de distancia de una instalación que ofrezca conexiones externas para calefactores o aires acondicionados

Dallas-Fort Worth Clean Cities Annual Sponsorship Levels

members

1 2 3 4 5 6

\$250 \$500 \$1000 \$2000 \$3500 \$5000

	1	2	3	4	5	6
Access to Quarterly Meetings and other Networking Opportunities	x	x	x	x	x	x
Monthly E-Newsletter and Other E-Communications	x	x	x	x	x	x
DFWCC or DOECC Vehicle/Technology Decals	x	x	x	x	x	x
Access to Online Membership Portal and Vendor Directory	x	x	x	x	x	x
Discounted Registration on Events and Conferences (ex: ACT Expo, Green Fleet)	x	x	x	x	x	x
Logo and Link on DFWCC Website Sponsor Page and Recognition During Meetings	x	x	x	x	x	x
Logo on DFWCC Annual Report		x	x	x	x	x
Social Media Post Announcing Sponsorship		x	x	x	x	x
Logo and Link in Monthly E-Newsletter			x	x	x	x
Free Admission (for 3) to DFWCC Events*			x	x	x	x
Featured as "Partner of the Month" on the DFWCC Home Page (with link)				x	x	x
Featured as "Partner of the Month" on the DFWCC E-Newsletter (with link)				x	x	x
Free Booth Space/Promotional Item Handouts at DFWCC Events*					x	x
Major Events Sponsor^						x

*Where event registration is collected

^Includes all other benefits as well as:

Sponsor recognition at the event - Sponsor recognition through event PR and invitations - Up to 5 free event admissions - Sponsor logo in event program/agenda



Dallas-Fort Worth
CLEAN CITIES

Your monetary sponsorship will allow the Dallas-Fort Worth Clean Cities (DFWCC) coalition and the North Central Texas Council of Governments (NCTCOG) to conduct much needed education and outreach activities to the area's fleets, community leaders and citizens, as well as assisting in the increase of alternative fuel vehicles/advanced vehicle technologies and fueling/charging infrastructure in the North Texas region. Your support gives us the resources we need to hold workshops and seminars, provide comprehensive educational materials, and work with area citizens and transportation professionals to develop and implement green transportation policies and projects. Since the DFWCC is part of the national US Department of Energy Clean Cities program, we support all fuel types in an effort to reduce petroleum usage and strengthen the local economy. Please note that your contribution may be used for one or more fuel type and could also be used as match for funding opportunities. DFWCC counts on the support of members and donors to make our Clean Cities programs possible, and we value the contributions of our members and partners. For more information, please visit: www.dfwcleancities.org.

Thank you for supporting the Dallas-Fort Worth Clean Cities coalition and the SMARTE Program at the North Central Texas Council of Governments (NCTCOG). To learn more about what we do, please visit: www.dfwcleancities.org and www.nctcog.org/smart. Interested in becoming a sponsor? Fill out the information below!

Company/Organization: _____

Name of Liaison: _____

Title of Liaison: _____

Address: _____

Phone Number: _____

Email Address: _____

Website: _____

Please select amount:

Level 1 - \$250

Level 2 - \$500

Level 3 - \$1000

Level 4 - \$2000

Level 5 - \$3500

Level 6 - \$5000

SMARTE

Please submit sponsorship requests to NCTCOG staff at smarte@nctcog.org