## Commitment

Green Diesel Technology vehicles meet customers' performance needs and society's demand for clean air.

# Leadership

International leads the field in high performance diesel technology at near-zero emission levels.

# Efficiency

Diesel engines use up to 60% less fuel per mile than comparable gasoline or alternatively fueled engines.

## **Environment**

Diesel vehicles produce about two thirds the amount of the CO<sub>2</sub> emissions associated with global warming that gasoline vehicles do.

# Solutions

International identifies emerging technologies that provide practical solutions for tough transportation issues.

For more information, see internationaldelivers.com and greendieseltechnology.com



Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment. The Green Diesel Technology Engines Wordmark and International Diamond Logo are registered trademarks of International Truck and Engine Corporation.

International Truck and Engine Corporation 4201 Winfield Road Warrenville, IL 60555





# GREEN DIESEL

TECHNOLOGY ENGINES, TRUCKS, AND SCHOOL BUSES





LEADING THE FIELD IN PERFORMANCE AT **NEAR-ZERO EMISSIONS** 



### GREEN DIESEL TECHNOLOGY ENGINES

#### Why Diesel Power?

There are many reasons why diesel is used so widely. Diesel has some key advantages over other types of engines and fuels.

#### Power and Durability.

Diesel engines offer many advantages. They are powerful and durable. Because they produce large amounts of torque at low engine speeds, they can be depended on to pull heavy loads from a standing start or uphill. By contrast, many alternative fuels such as natural gas that are used in buses and other vehicles require undesirable trade-offs regarding power, durability and vehicle range.

#### • Energy-Efficiency.

Diesel engines are also extremely energy-efficient: they use up to 60 percent less fuel per mile than comparable gasoline or natural gas engines. This means less dependence on foreign fuel supplies and reduced pressure to produce more oil and gas in the U.S.



#### • Safety.

Compared to alternative fuels, diesel fuel is stable, safe and easy to use, requiring no special handling or storage. Unlike diesel, natural gas is associated with a number of safety hazards. Because it is highly flammable, explosions and fires are always a possibility, and it must be stored extremely carefully in order to avoid dangerous leaks or fires.

### A Cost Effective Answer to Clean Air Concerns Now

#### **Breakthrough Green-Diesel Engineering**

International Truck and Engine Corporation, a leading designer and manufacturer of diesel engines for medium-duty trucks, school buses and light trucks, leads in the search for better engines and cleaner air. International believes that with new advancements in diesel engine and after-treatment technology – and with the increasing availability of cleaner diesel fuel – the most powerful, efficient engines can also be the cleanest.

In 2001, the U.S. Environmental Protection Agency certified the clean-air performance of International's Green Diesel Technology® engine as able to meet standards established for 2007 for the reduction of particulate and hydrocarbon emissions. In 2001-2003, International delivered over 130 school buses with these engines to customers in California and Arizona.

International's Green Diesel Technology combines our advanced low-emitting, high performance truck and bus engines with a catalyzed diesel particulate filter and ultra-low-sulfur diesel fuel to yield impressive results: a 95 percent reduction in particulate and hydrocarbon emissions. Progress is also under way to further cut levels of nitrogen oxides – with levels expected to be reduced by 99 percent in 2010, from the levels 30 years earlier.

Enabling low-emitting diesel engineering and particulate filter technology is the new availability of diesel fuel with reduced sulfur content.

#### State Officials Can Rely on Green Diesel Technology

Green Diesel Technology is a proven option for state officials as they plan future public and school transportation.

Under federal rules for heavy-duty diesel vehicles proposed for 2007, ultra-low-sulfur diesel fuel (below 15 parts per million sulfur content) will soon become widely available.

As the first entry of 2007-level technology in the marketplace, International is delivering low-emission Green Diesel Technology school buses.

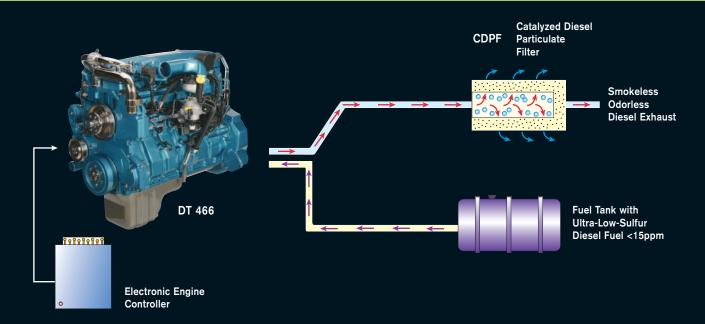
International is working with customers and officials in various states to find clean-air solutions, including emissions-reduction retrofit of qualifying bus and truck engines.

#### What Happens Tomorrow?

International Truck and Engine Corporation will continue its commitment to lead in engine design and development, to meet customers' requirements and the public interest in a clean environment.

Starting today, Green Diesel Technology vehicles can help owners and operators of school buses and trucks enjoy reliable, fuel-efficient diesel performance – at near-zero emission levels.

# Low-Emitting Diesel Technology Using Ultra-Low-Sulfur Fuel



#### Green Diesel Technology School Bus vs. Natural Gas Buses

(certification levels in g/bhp-hr)

	Green Diesel Technology Engine	Natural Gas School Bus Engine		
PM	0.002	0.011		
NOx	2.2	1.1		
HC/NMHC	0	0.1		
NMHC+NOx	2.2	1.2		

#### Alternatives at a Glance...

To help the environment, researchers are looking for alternatives to gasoline. Possible options include diesel fuel as well as fuels that are not used widely today. Each alternative fuel has pros (+) and cons (-) that are being researched.

The following chart shows how some alternative fuels compare, including how easy, inexpensive and safe they are to use.

	Diesel	Methanol	Ethanol	Compressed Natural Gas	Liquified Natural Gas
Supply	+	-	-	+	+
Ease of distributing fuel	+	+	+	-	-
Cost to produce	+	+	-	+	+
Safety	+	-	-	-	-
Available locations & ease of fueling	+	-	-	-	-
Storage of fuel	+	-	+	-	-
Power per equivalent gallon	+	-	-	-	-

As you can see from the chart, diesel fuel has many more positive points than other possible fuels.

