

**EVERY  
ALTERNATIVE.**

A scenic landscape photograph of a mountain range with snow-capped peaks and green hills in the foreground under a blue sky with light clouds.

**ISL G Update**  
**Sept 2008**

# Cummins Westport

## A Cummins JV Company

- CWI is a 50:50 joint venture company based in Vancouver, BC
  - Cummins Inc. - world's largest builder of commercial diesels,
  - Westport Innovations Inc. - world leader in gaseous fuel engine technology
- CWI offers 6 to 9 litre alternative fuel automotive engines. (CNG, LNG, LPG)
- Engines are manufactured by Cummins.
- Local parts and service support through Cummins Distributor network.

# Why Natural Gas Engines for Buses & Trucks?

## Emissions Leadership

- Meet Regulated 2010 EPA Emissions today
- Lower greenhouse gas emissions



## Economic Benefits

- Improved Reliability
- Improved Efficiency
- Lower total fuel costs

## Energy Security

- Reduced reliance on oil
- Biomethane capable
- Pathway to hydrogen

# Cummins Westport

## Heavy Duty Engines Designed Specifically for Alternative Fuels

- *Based on Reliable Cummins Engine Platforms*
- *Common parts and design provide heavy duty performance*
- *Engineered and Optimized Specifically for Alternative Fuel*
- *Continued improvement in reliability and cost of ownership*
- *Service Support through the Global Cummins Distributor network*

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# 2008 CWI Product Line

**B GAS  
PLUS**

**B LPG  
PLUS**



**Inline 6 Cylinder**

**Charge Air Cooled**

**5.9 Litre**

**Combustion: Lean Burn**

**Power: 195–230 hp**

**Torque: 420–500 lb-ft**

**ISL G**



**Inline 6 Cylinder**

**Charge Air Cooled**

**8.9 Litre**

**Combustion: Stoich EGR**

**Power: 250-320 hp**

**Torque: 660-1000 lb-ft**

# Natural Gas Engine Continuous Improvement

	L 10 G	C 8.3	C Plus	'07 Gas
Emissions	Better	Better	Better	Better
Reliability	Worse	Worse	Similar	Similar
Fuel Cost/Mile	Worse	Worse	Similar	Better
Durability	Worse	Worse	Similar	Similar
LCC	Worse	Worse	Worse	Better
Timeline	1989	1996	2001	2007

# OEM Availability

North America						
OEM	Model	Segment	B Gas Plus	B LPG Plus	ISL G	Comments
Sterling Truck	Setback 113 (Class7/8)	MD/HD Truck			X	LNG May '08 -CNG option in '09
American LaFrance	Condor	Refuse			X	
AutoCar	WX / WXLL	Refuse			X	
Crane Carrier	LCF	Refuse			X	
Peterbilt	320	Refuse			X	
Mack	TerraPro Series	Refuse			X	New '08
Blue Bird	Ultra LF	Shuttle	X			
El Dorado National	Axess/E-Z Rider II/Transmark RE/XHF	Shuttle	X	X		
Freightliner Custom Chassis	MB-55	Shuttle	X	X		
Optima Bus	AH-28 (CNG + Propane)	Shuttle	X	X		
Blue Bird	All American	School Bus			X	Available July '08
Thomas Bus	Saf-T Liner	School Bus			X	Available July '08
Elgin	Eagle/Broom Bear/Crosswind	Sweeper	X	X		
Allianz Sweeper	4000	Sweeper	X	X		
Schwarze	A7000	Sweeper	X	X		
Tymco	Model 600	Sweeper	X	X		
NABI	35 LFW/40 LFW/60 BRT	Urban Bus			X	
New Flyer	30 LF/35 LF/40 LF	Urban Bus			X	
Orion	Orion V HF/Orion VII LF	Urban Bus			X	
Capacity	TJ9000 (LNG), TJ5000	Yard Spotter	X	X	X	ISL G now available
Ottawa		Yard Spotter	X	X		
<b>Re-Power</b>						
Complete Coach Works	Freightliner M2 Business Class	MD/HD Truck			X	ISL G Re-Power
Fontaine Modification Company	Freightliner M2 Business Class	MD/HD Truck			X	

# ISL G Applications

Truck



Specialty



Bus



REFUSE

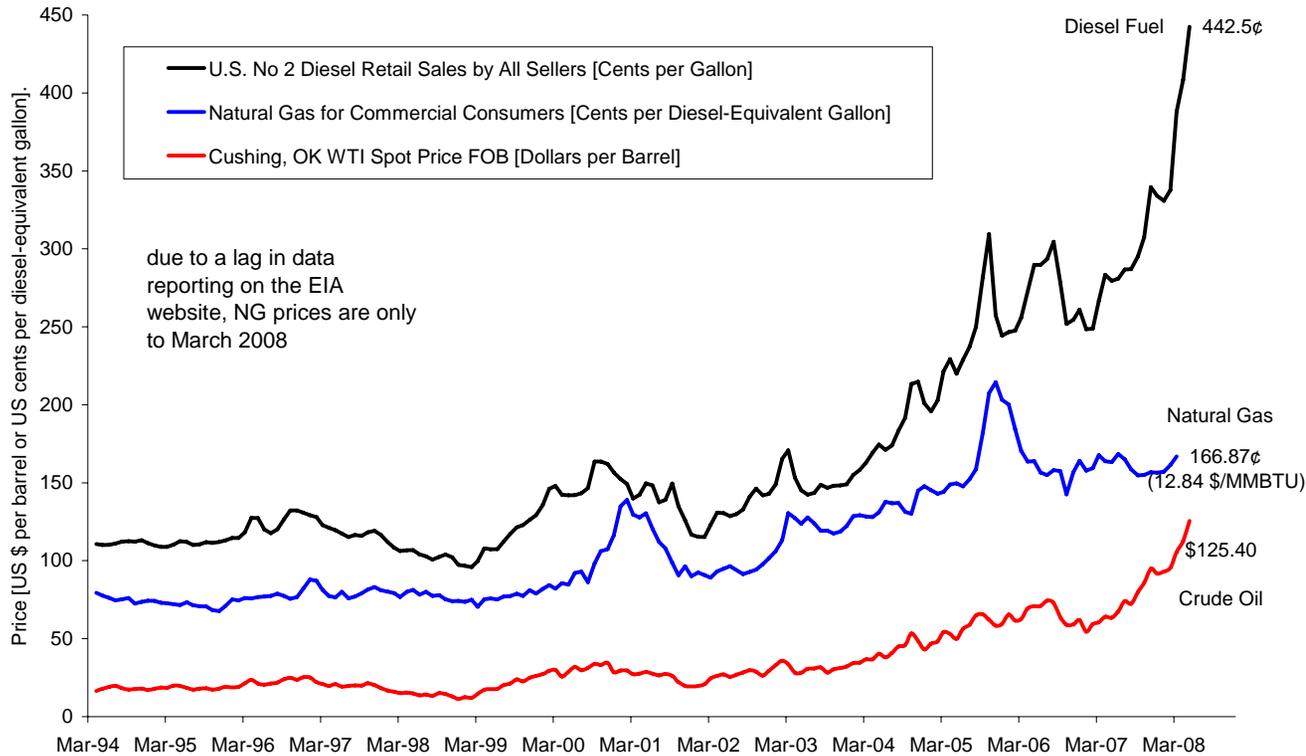


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# Natural Gas Fuel Costs Less

- Diesel and natural gas prices follow a fairly predictable pattern in relation to crude oil prices with natural gas being less expensive than diesel fuel
- When crude oil prices rise, natural gas prices tend to rise *less* than diesel prices do, widening the price gap
- If anything, at today's higher crude oil prices natural gas prices are *less* than this historical relationship

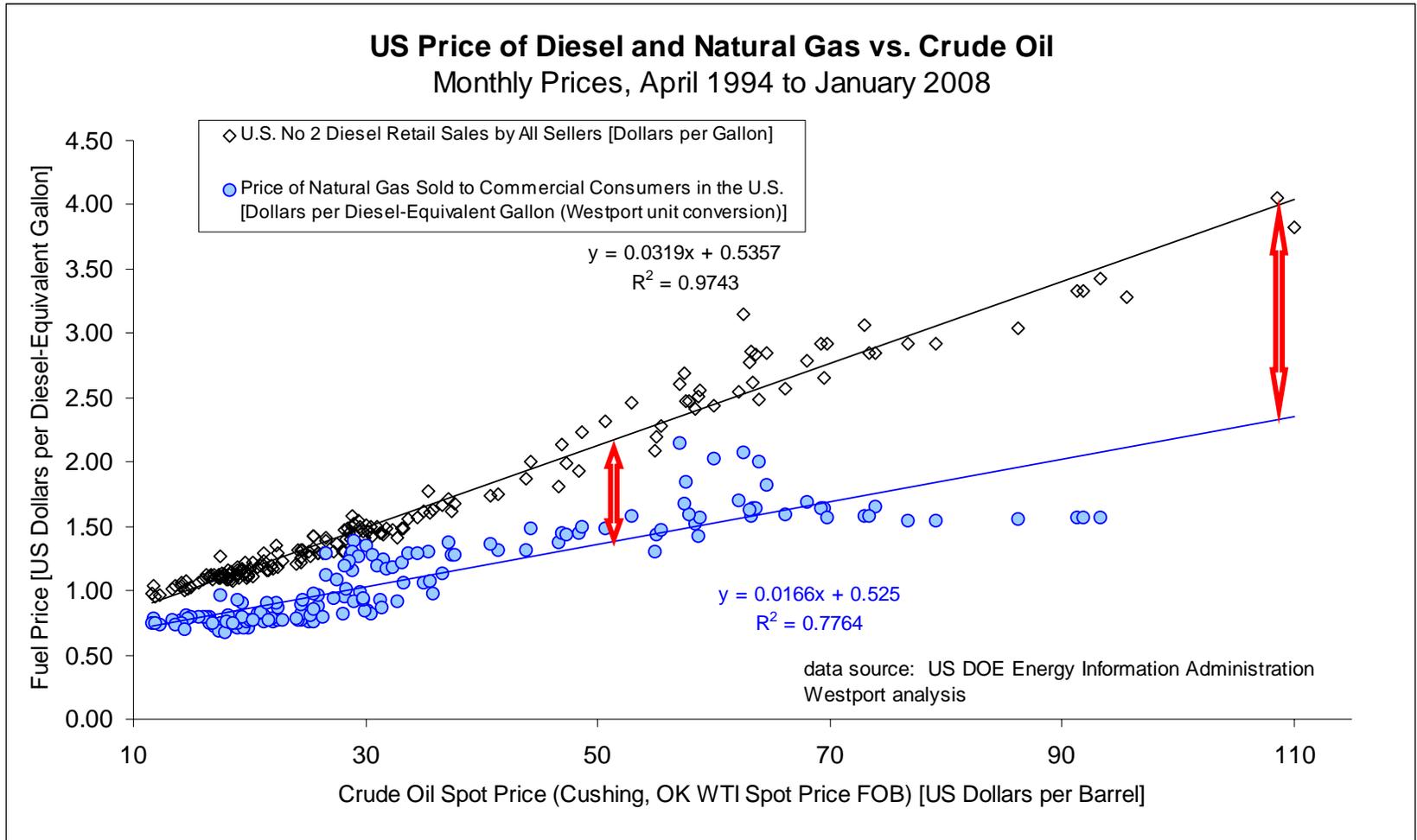
**Price History for Crude Oil, Diesel Fuel, and Pipeline Natural Gas for Commerical Customers**



data source: US DOE Energy Information Administration

# Price Comparison Plot

Natural Gas price advantage grows as crude prices rise



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