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## **CNG School Buses**

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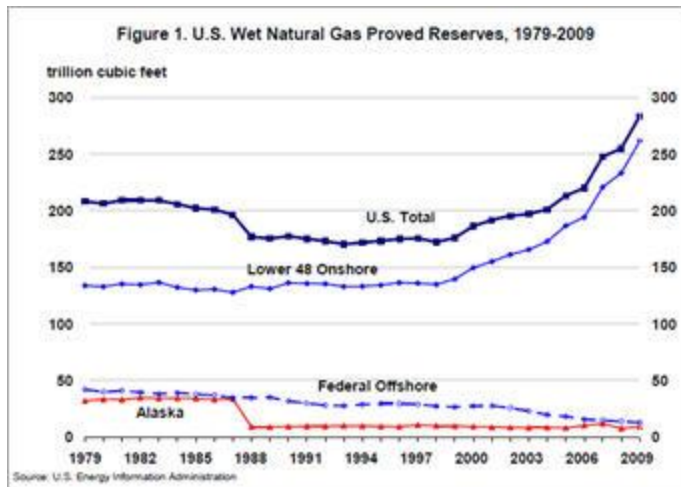
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# CNG Pros and Cons

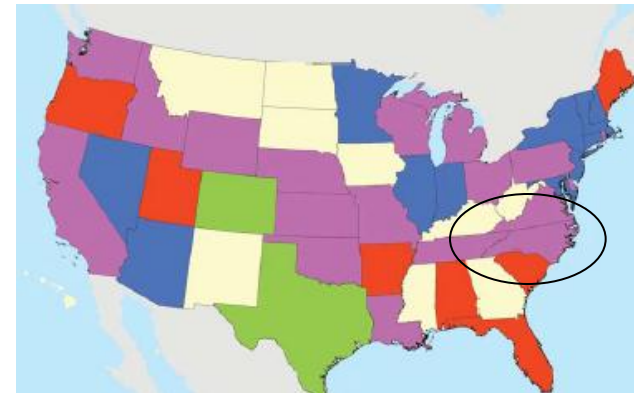
## Pros

- Domestic Fuel
- Vast Reserves
- Lower Operating Costs
- Clean Burning



## Cons

- High Initial Cost
- Requires Fueling Infrastructure
- Longer time to fill
- “New” technology



2.00-2.50 per  
gallon less

CNG Price Difference Relative to Diesel	(\$2.50)-(\$2.00)	(\$1.50)-(\$1.00)
	(\$2.00)-(\$1.50)	(\$1.00)-(\$0.50)

# Calculated Savings

With no fuel credits

Cost Delta per unit	Miles per year	Cost Delta (fuel)	Diesel MPG	Savings per year	Payback (yrs.)
\$ 50,000.00	18000	\$ 2.50	7	\$ 6,428.57	7.777778

With .50/gallon fuel credits

Cost Delta per unit	Miles per year	Cost Delta (fuel)	Diesel MPG	Savings per year	Payback (yrs.)
\$ 50,000.00	18000	\$ 3.00	7	\$ 7,714.29	6.481481

# Daimler Experience with CNG & Other Green Engines

Retail Sales US/CAN	Prior	2009	2010	2011	2012 YTD	Backlog
FTL M2 Hybrid Trucks	14	48	288	227	5	18
FTL Natural Gas Trucks	0	2	230	427	44	39
STL Natural Gas Trucks	71	219	36	0	0	0
<b>FTL/STL Total</b>	<b>85</b>	<b>269</b>	<b>554</b>	<b>654</b>	<b>49</b>	<b>57</b>
FCCC Hybrid Van	163	198	19	243	3	0
FCCC Hydraulic Hybrid Van	0	0	2	0	0	20
FCCC Natural Gas Van	547	250	34	0	0	50
FCCC Natural Gas Bus (CNG)	347	9	7	0	0	0
FCCC Natural Gas Bus (LNG/LPG)	112	0	0	0	0	0
FCCC Plug-in Electric	0	0	0	2	0	0
<b>FCCC Total</b>	<b>1,169</b>	<b>457</b>	<b>62</b>	<b>245</b>	<b>3</b>	<b>70</b>
TBB Saf-T-Liner C2e Hybrid	0	8	57	96	31	0
TBB Saf-T-Liner HDX CNG	874	37	264	99	6	6
<b>TBB Total</b>	<b>874</b>	<b>45</b>	<b>321</b>	<b>195</b>	<b>33</b>	<b>19</b>
<b>DTNA Total</b>	<b>2,128</b>	<b>771</b>	<b>937</b>	<b>1,094</b>	<b>67</b>	<b>136</b>



## Saf-T-Liner® HDX CNG

- Available for Over 10 Years
- Type D School & Activity Bus
- Cummins ISL G
- 2010 EPA Compliant



## Customer Benefits

- 2010 compliant since 2007
- Greenhouse gas emissions are up to 22% lower than diesel
- Easy maintenance access to tanks
- Lengthens intervals between oil changes vs. standard fuel options
- Lowers maintenance costs with maintenance-free aftertreatment
- Improves torque throughout operating range
- Improves efficiency
- Maintains pass-through luggage compartment availability
- 80% parts commonality with Cummins ISL engine
- Eligible for federal per-gallon credit
- Qualifies for federal tax credit: Qualified Alternative Fuel Motor Vehicle Credit as a Qualified Alternative Fuel Motor Vehicle (Visit <http://www.irs.gov/businesses/article/0,,id=175456,00.html> for more information.)

## Versatile, customizable, and 2010 emissions ready.

- Compressed Natural Gas (CNG) is a fossil fuel substitute for gasoline, diesel and propane. It's cleaner. And more environmentally friendly.
- We launched our CNG bus, the Thomas Built Saf-T-Liner HDX CNG, more than 10 years ago. Since then, we've put more than 1,000 CNG buses on the road.
- With a tough build and the largest windshield in its class for better driver visibility, it's no wonder the HDX is the long-route leader. The HDX can take on all of your school equipment, up to 90 passengers, and it is completely customizable to satisfy your demands. Add-ons like air conditioning, pass-through underbody storage and coach-style seating keep everyone comfortable no matter the distance.

## FAST FACTS

- CNG Fuel Tank and Cage Feature Description
- Type III Tanks made of polycarbon wrap and seamless aluminum
- Cell-style setup
- Up to 5 fuel tanks (67 gallons equivalent)
- Excellent crash protection cage
- Unsurpassed driving range
- Saddle ends for easy rotation

Seating Capacity	90
GVWR	36,200 lbs.
Transmission	Allison
Engine	Cummins ISL G (compressed natural gas) (250 hp, 280 hp) 2010 emissions ready 8.9 liter displacement
Wheel Cut	45 degree
Warranty	Five-year/100,000 miles

## Customers who like CNG



- Have fueling stations
- See CNG as a long-term solution
- Train their technicians to service CNG products
- Don't require over 350 miles of range
- Have incentive to purchase

## Customers who don't like CNG

- Drive units off-site to fill
- See CNG as a "science project"
- Use buses for long trips





## **NC Pilot Program Considerations**

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- Type D Transit Style buses currently available from Thomas Built or Blue Bird
- Type C Conventional buses under development by multiple OEM's – likely 2014 availability
- Type A small buses could be developed – payload is a significant issue
- 25-50 buses per locations provides a large enough group for a trial
- Card-lock fuel station could off-set some cost
- CNG suppliers are often willing to partner to set up needed infrastructure