

**Guide to
Available Natural Gas Vehicles and Engines**
a listing of
Light-, Medium- and Heavy-Duty Vehicles and/or Engines
available directly from
Original Equipment Manufacturers (OEM)
or via Qualified System Retrofitters Using EPA-/CARB-Certified Systems
from Small Volume OEMs (SVM)

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Read page 2 "How to Use This Guide" before proceeding further

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How to Use This Guide

On the following pages, NGVAmerica has assembled information about vehicles and/or engines that have been certified by the US Environmental Protection Agency (EPA) and/or California Air Resources Board (CARB) to operate on natural gas, either as (1) dedicated vehicles - *spark-ignited engine operates on natural gas only*, (2) bi-fuel vehicles - *spark-ignited engine operates on either compressed natural gas (CNG) or gasoline, but not both at same time*, or (3) dual-fuel vehicles - *compression-cycle engine operates primarily on natural gas but uses diesel as ignition "pilot".*

Generally, CARB has more stringent emissions and on-board diagnostics (OBD) compliance requirements than EPA. Other differences between the two sets of standards is that EPA classifies vehicles under 8500 pounds GVW as light duty and those over as heavy-duty while CARB's light duty classification goes up to 10,000 pounds. While most states require certification to EPA standards, a growing number of states are opting to adopt CARB standards for new registered vehicles. Check with your state officials to determine whether CARB standards have been adopted in your state; otherwise EPA standards apply.

This Guide's list of light-duty vehicles includes those manufactured at the factory by traditional Original Equipment Manufacturers (OEMs) such as American Honda, and those retrofit with EPA- or CARB-certified engine systems after leaving the factory using systems made by Small Volume Original Equipment Manufacturers (SVMs). Furthermore, SVM engine retrofit systems may be installed before placing the vehicle into active service or afterward. System installations are usually handled by the SVMs themselves or their Qualified System Retrofitters. Note that, unlike the unregulated "conversion kits" that were available from dozens of manufacturers in the late-1970s through the mid-1990s, all gaseous fuel engine systems on the market today are engineered and tested to comply with the same tough CARB and/or EPA emissions performance requirements as the large automobile manufacturers.

Also note that EPA and CARB certifications of light-duty vehicle retrofit systems are for specific model years and installation time-periods. Only ACTIVE CERTIFICATIONS are listed on the chart starting on page 3. Some SVMs also hold certifications from previous years but these may not have been "carried forward" as required by EPA if the installation time period for the model year for which the cert was issued has now passed. Those interested in converting an existing vehicle should check with the SVMs about whether these prior year certifications have been renewed. Most have not been carried forward more than a year or two from the original model year in which they were issued.

The Guide's list of medium- and heavy-duty engines is sorted by engine size (defined by displacement) and - for the Otto-cycle (gasoline) based engines - the vehicle chassis to which those engine retrofit systems apply (per EPA and CARB rules concerning modifications to gasoline-based engines). For the diesel-based engine platforms, we have attempted to list the OEM or Distributor OEM (DOEM) relationships to which they apply but readers are advised that these engines are also permitted to be field-retrofit by engine-system integrators to additional platforms. Contact the engine manufacturer to get a full listing of available applications.

*When new engines are EPA- or CARB-certified to run on hydrogen (H2) or hydrogen-CNG blends (generically referred to as "HCNG"), these engines will be added to the listing. As of this revision of the guide (1/1/2009), H2 and HCNG engines were being tested/monitored in various field RD&D trials but none had yet been certified for general commercial sale.

This Guide is a work product of NGVAmerica and not an official government document - any omissions or errors are inadvertent. If notified of errors or omissions, NGVAmerica will do its best to verify certifications and correct this listing as quickly as possible.

Engine/Vehicle Certifications (Vehicles over 14,000# GVWR)

BAF Technologie See Light-Duty Vehicle charts for additional listings by BAF Technologies

8.8L V-10 (spark-ignited)	Dedicated CNG retrofit of Ford gasoline engine with CARB/EPA certifications covering: MY'08, '09 E450 series cutaway chassis for shuttles, box trucks, etc. (See also - chart of vehicles up to 14,000# for more BAF Technologies retrofit system certifications)
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Baytech Corporat See Light-Duty Vehicle charts for additional listings by Baytech Corporation

6.0L HD (spark-ignited)	Dedicated and bi-fuel CNG retrofit of GM gasoline engine with CARB/EPA certifications covering: MY '09 Chevrolet W4500 "cab-over" truck chassis; Isuzu NPR HD "cab-over" truck chassis; Workhorse W42 walk-in van chassis (over 14,000#) Dedicated CNG retrofit of GM gasoline engine with CARB/EPA certifications covering : G4500 cutaway; (See also - chart of vehicles up to 14,000# for more Baytech Corporation retrofit system certifications for 6.0L GM engine)
8.1L (spark-ignited)	Dedicated CNG and bi-fuel retrofit of GM gasoline engine with CARB/EPA certifications covering: MY '07 (if low mileage), '08 and '09 C4500/5500 cutaway chassis; C4500/5500/6500/7500/8500 Topkick/Kodiak conventional truck chassis; Workhorse W62 walk-in van chassis.

Cummins Westport Inc

5.9L B Gas Plu (spark-ignited)	Dedicated natural gas engine based on Cummins ISB diesel platform; 195-230 HP; medium-duty applications such as shuttles, buses, delivery trucks, walk-in vans, yard spotters, and street sweepers. Ex: Freightliner Custom Chassis Corp (FCCC) MT45/MT55 walk-in van chassis; FCCC MB55 shuttle bus chassis (upfit by multiple vendors); Tymco, Elgin, Allianz-Johnston and Schwarze sweepers (various models) . This engine is slated to remain in production thru Dec 31, 2009.
8.9L ISL G (spark-ignited)	Dedicated natural gas engine based on Cummins ISL diesel platform; 2010-compliant (.2 NOx and .01PM): HP ratings of 250, 260, 280, 300, 320; replaced CWI's C Gas Plus and L Gas Plus engine lines in June 2007. Available in: Refuse trucks (Peterbilt LCF 320, Crane-Carrier LET, Autocar Xpeditor, American LaFrance Condor and Mack ProTerra); school buses (Thomas Built Saf-T-Liner HDX, Blue Bird All American RE); work trucks (Sterling "L" setback 113 tractor trucks ordered by Jan 1, 2009; Freightliner M2 tractor trucks available June 2009 and M2 112 straight truck orders taken year-end 2009); several sweeper mfrs (see 5.9 list). Generally, CWI does not repower existing diesel vehicles, and instead, sells thru bus and truck OEMs and their dealers. There are exceptions to this general rule including some transit applications - contact your dealer or your regional CWI sales manager for more information.

Emission Solutions Inc

7.6L NG Phoen (spark-ignited)	Dedicated natural gas engine based on International-Navistar DT466 (#308 2-valve) diesel platform, remanufactured to natural gas operational specifications; EPA-/CARB-certified 2010-compliant at .2NOx and .01PM; 260 HP, 730 ft.-lb torque; Engine/fuel system change-out for existing 1994-2003 diesel International DT466-equipped school buses, medium-/medium-heavy-duty and heavy-duty cutaway shuttles and work trucks. Certifications pending for 2004-2009 MaxxForce DT (#316, #326 4-valve) version of same engine with 300Hp and 860 ft.-lb torque. (Additional development/certifications in process for Phoenix 9.3L 350Hp and 1200 ft.-lb torque based on MaxxForce 10 diesel platform)
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Westport Innovations

15L ISX-G (compression ignited)	Dual-fuel High Pressure Direct Injection (HPDI) system engine runs on 95% natural gas with 5% diesel pilot fuel; The ISX-G is based on Cummins ISX diesel platform; CARB/EPA-certified, available up to 450Hp configuration for HD work truck and line-haul applications (including OEM installation by Kenworth in May 2009 and Peterbilt June 2009);
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Spark-Ignited Natural Gas (SING) Vehicles Up to 14,000# (Active Certifications Only)

(Engine/vehicle listings below refer to EPA and/or CARB certificate holders; some companies listed below may also install other SVM's systems)

Small Volume OEM (SVM) Vehicles (CONVERSIONS VIA SVMs AND/OR THEIR QUALIFIED SYSTEM RETROFITTERS)

Engine	Make	Model	Baytech Corporation			BAF Technologies			Fuel Tek Corporation			IMPCO Technologies			Natural Drive			Altech-Eco		
			Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY) CARB (C)	Model Year(s)
GM3.5L	Chevy	Impala																		
GM3.9L	Chevy	Impala																		
GM4.8L	Chevy	Express passenger/Cargo Van G1500																		
GM6.0L	Chevy	Express Passenger/Cargo Van G1500																		
GM6.0L	Chevy	Express Passenger/Cargo Van G2500	Ded.	E/C	09															
GM6.0L	Chevy	Express Passenger/Cargo Van G3500	Ded.	E/C	09															
GM6.0L	Chevy	Express Cutaway G3500	Ded.	E/C	09															
GM6.0L	Chevy	Express Cutaway G4500 (14,200# GVWR)	Ded.	E/C	09															
GM6.0L	Chevy	Silverado C/K1500 2WD/4WD pick-up																		
GM6.0L	Chevy	Silverado C/K2500 HD 2WD/4WD pick-up	Bi-Fuel	E	09															
GM6.0L	Chevy	Silverado C/K2500 HD 2WD/4WD pick-up	Ded	E/C	09															
GM6.0L	Chevy	Silverado C/K3500 2WD/4WD pick-up	Bi-Fuel	E	09															
GM6.0L	Chevy	Silverado C/K3500 2WD/4WD pick-up	Ded.	E/C	09															
GM6.0L	Chevy	Silverado C/K25 HD 2WD/4WD cab-chassis	Ded.	E/C	09															
GM6.0L	Chevy	Silverado C/K35 HD 2WD/4WD cab-chassis	Ded.	E/C	09															
GM6.0L	Chevy	W3500 cab-over truck chassis	Ded.	E/C	08/09															
GM4.8L	GMC	Savana Passenger/Cargo Van G1500																		
GM6.0L	GMC	Savana Passenger/Cargo Van G1500																		
GM6.0L	GMC	Savana passenger/Cargo Van G2500	Ded.	E/C	09															
GM6.0L	GMC	Savana Passenger/Cargo Van G3500	Ded.	E/C	09															
GM6.0L	GMC	Savana Cutaway G3500	Ded.	E/C	09															
GM6.0L	GMC	Savana Cutaway G4500 (14,200# GVWR)	Ded.	E/C	09															
GM6.0L	GMC	Sierra C1500HD																		
GM6.0L	GMC	Sierra C/K2500 HD 2WD/4WD	Bi-Fuel	E	09															
GM6.0L	GMC	Sierra C/K2500 HD 2WD/4WD	Ded.	E/C	09															
GM6.0L	GMC	Sierra C/K3500 2WD/4WD	Bi-Fuel	E	09															
GM6.0L	GMC	Sierra C/K3500 2WD/4WD	Ded.	E/C	09															
GM6.0L	GMC	Sierra C/K25 HD 2WD/4WD cab-chassis	Ded.	E/C	09															
GM6.0L	GMC	Sierra C/K35 HD 2WD/4WD cab-chassis	Ded.	E/C	09															
GM6.0L	GMC	W3500 cab-over truck chassis	Ded.	E/C	08/09															
GM6.0L	Isuzu	NPR cab-over truck chassis (up to 14,000#)	Ded.	E/C	08/09															
GM6.0L	Workhorse	W42 walk-in/step-van truck (up to 14,000#)	Ded.	E/C	08/09															

Continued on next page

Spark-Ignited Natural Gas (SING) Vehicles Up to 14,000# (Active Certifications Only)

(Engine/vehicle listings below refer to EPA and/or CARB certificate holders; some companies listed below may also install other SVM's systems)

Small Volume OEM (SVM) Vehicles (continued) (CONVERSIONS VIA SVMs AND/OR THEIR QUALIFIED SYSTEM RETROFITTERS)

Engine	Make	Model	Baytech Corporation			BAF Technologies			Fuel Tek Corporation			IMPCO Technologies			Natural Drive			Altech-Eco		
			Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)
2.0L	Ford	Focus																Bi-Fuel	E	08/09
Ford4.6L	Ford	Crown Victoria				Ded.	E/C	07/08/09												
Ford5.4L	Ford	Expedition				Ded.	E/C	08/09												
Ford5.4L	Ford	F 150 pick-up + cab-chassis				Ded.	E/C	08/09												
Ford5.4L	Ford	F 250 pick-up + cab-chassis				Ded.	E/C	08/09	Bi-Fuel	E	08									
Ford5.4L	Ford	F350 pick-up + cab-chassis (up to 13K GVWR)				Ded.	E/C	08/09	Bi-Fuel	E	08									
Ford5.4L	Ford	E-150 Passenger/Cargo Van							Bi-Fuel	E	08									
Ford5.4L	Ford	E-250 Passenger/Cargo Van				Ded.	E/C	08/09	Bi-Fuel	E	08									
Ford5.4L	Ford	E-350 Passenger/Cargo Van/Club Wagon				Ded.	E/C	07/08/09	Bi-Fuel	E	08									
Ford6.8L	Ford	E-450 Cutaway (may exceed 14,000#)				Ded.	E/C	08/09												
Ford4.6L	Lincoln	Town Car				Ded.	E/C	07/08/09												
Ford5.4L	Lincoln	Navigator				Ded.	E/C	08/09												
Ford4.6L	Mercury	Grand Marquis				Ded.	E/C	07/08/09												

Original Equipment Manufacturer (OEM) Vehicles (NO CONVERSIONS)

Engine	Make	Model	Bi-Fuel /Ded.	EPA (EY CARB (C)	Model Year(s)
Honda1.8L	Honda	Civic GX	Ded.	E/C	97-09

Contacts

Company	Address	Name	Telephone	E-Mail
Altech-Eco	101 Fair Oaks Road, Arden, NC 28704	Par Neiburger	828-654-8300	par@transecoenergy.com
American Honda Motor Co.	1919 Torrance Blvd, MS 100-3C-3A, Torrance, CA 90501	Eric Rosenberg	310-781-4457	eric_rosenberg@ahm.honda.com
BAF Technologies	2415 Beatrice Street, Dallas, TX 75208	Bill Calvert	214-231-1458	bcalvert@baftechnologies.com
Baytech Corporation	PO Box 1148, Los Altos, CA 94022	Richard Turner	650-949-1976	sales@baytechcorp.com
Cummins Westport Inc.	1750 West 75th Ave., #101, Vancouver, BC V6P 6G2	Jeff Campbell	604-718-8100	jcampbell@cumminswestport.com
Emission Solutions Inc.	2001 Central Circle, Ste 106, McKinney TX 75069	Jim Moore	972-369-0092	jimmoore@emissionsolutionsinc.com
FuelTek Conversion Corp	5660 E. 58th Avenue, Unit B, Commerce City, CO 80022	Holly Biggers	720-941-2791	answers@fueltek.biz
IMPACO Technologies	3030 South Susan Street, Santa Ana, CA 92704	Jim Sherouse	714-656-1325	autoinquiries@impacotechnologies.com
NaturalDrive	3134 West Lewis - Suite 44, Phoenix, AZ 85009	John Milton	801-768-2986	john@naturaldrive.com
Westport Innovations	1750 West 75th Ave., #101, Vancouver, BC V6P 6G2	Jonathan Burke	604-718-8100	jburke@westport.com

SEE ALSO http://www.ngvamerica.org/pdfs/FAQs_Converting_to_NGVs.pdf for more information

PLEASE, DO NOT CONTACT HONDA FOR CONVERSION SYSTEMS - THEY OFFER AN OEM VEHICLE ONLY

PLEASE, DO NOT CONTACT NGVAMERICA TO ASK WHY A RETROFIT SYSTEM IS NOT AVAILABLE FOR YOUR MAKE/MODEL YEAR (WE DO NOT CONTROL/INFLUENCE OEM'S/SVM'S R&D AND EPA/CARB CERTIFICATION DECISIONS)

PLEASE, DO NOT CALL/E-MAIL NGVAMERICA QUESTIONING EPA/CARB CERTIFICATION REQUIREMENTS AND COSTS. WE DO NOT REPRESENT EPA NOR CARB. WE INFORM PROSPECTIVE PURCHASERS OF THE APPLICABLE LAWS AND REQUIREMENTS

For more information, please contact:

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