



Transforming our Nation's Transportation Sector

The Role of Natural Gas

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Natural gas: Clean, domestic, secure, affordable energy for transportation

Clean. Greenhouse gas emissions 20-30% lower than comparable gasoline light-duty vehicles.

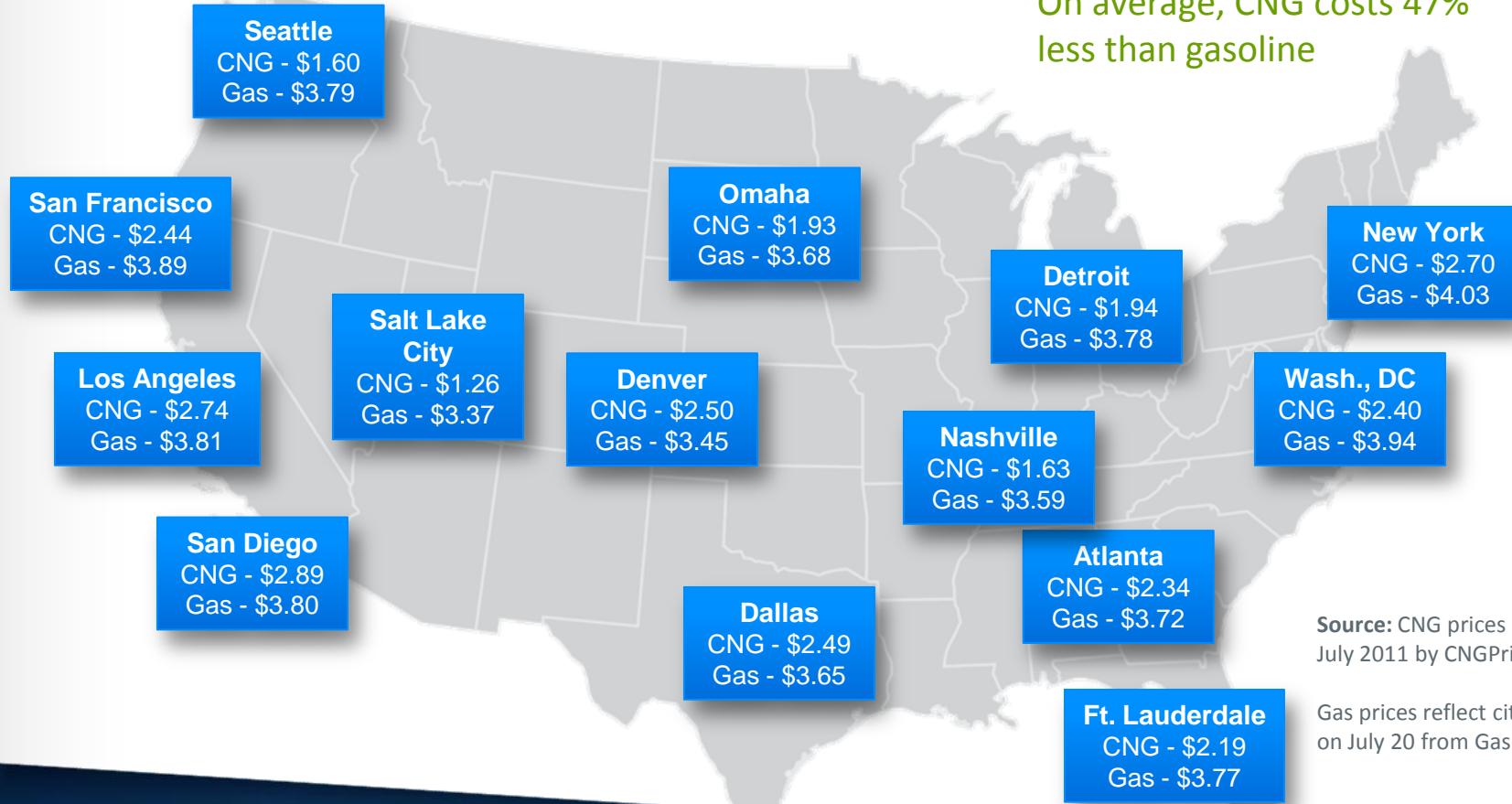
Secure. Domestic gas production accounts for 89% of natural gas consumed in the United States.

Affordable. Natural gas prices are decoupled from petroleum, with abundant resources to support stable prices for years to come.



Natural gas vs conventional gasoline

On average, CNG costs 47% less than gasoline



Source: CNG prices captured in July 2011 by CNGPrices.com

Gas prices reflect city average on July 20 from GasBuddy.com

Other nations are realizing the potential of natural gas vehicles and moving forward.



Momentum is Building for NGVs in North America

Major vehicle manufacturers are *bringing NGVs to the North American market*

Medium and Heavy Duty



Light Duty



HONDA



CHRYSLER



Recent OEM Announcements:

Bi-Fuel Pickup Trucks Hit the U.S. Market



Chevrolet Silverado and GMC Sierra 2500 (bi fuel)

- 650 miles of combined natural gas and gasoline range
- GM previously ended NGV production in 2006 – but is now returning.

Chrysler Ram 2500 (bi-fuel)

- America's only factory-built, CNG-gasoline bi-fuel pickup truck
- OEM built means more than \$6,000 in savings over comparable vehicle conversions.



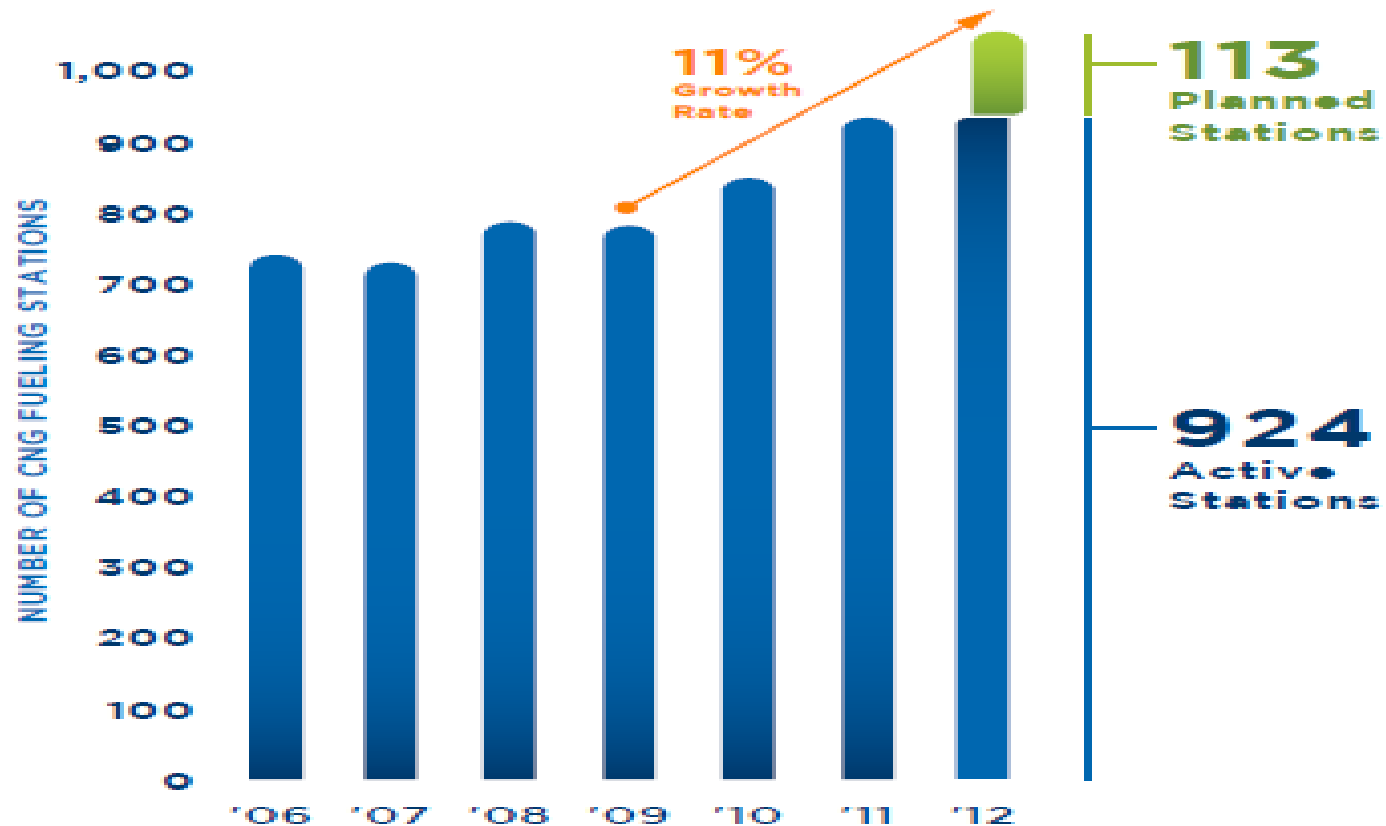
Leading the Way: NGVs in Fleets Across America



- Waste Management announced on May 11th it will convert its entire fleet – over 18,000 trucks – from diesel to CNG.
- UPS, AT&T, Comcast, Sysco, and Ryder have made significant commitments to NGVs in their national fleets.
- One-fifth of city transit buses run on natural gas today, and market share of is growing.
- More than 35 U.S. airports use NGVs in their fleets or encourage NGVs in private fleets operating on premises.



Our national CNG refueling infrastructure is growing each year.



“The economics and payback of natural gas are so strong that it dwarfs any other technology.”

**- Eric Woods
Vice President of Fleet and Logistics
Waste Management**

New Federal CAFE Vehicle Standards Will Encourage Production of Natural Gas Vehicles

- *The new rule extends these credits to NGVs for the first time.*
- Previously auto manufacturers received extra credits for electric and plug in hybrid vehicles.
- *This is a major step toward a level playing field between the alternative fuel choices.*



Leadership from State Governments:

- Twenty-two states working cooperatively to pool their buying power
- Estimating at least 10,000 natural gas vehicles will be purchased by participating states each
- First awards announced in early October, more to come



Memorandum of Understanding

This Memorandum of Understanding (MOU) describes a coordinated effort between the undersigned States (States) to attract automobile manufacturers in the U.S. to develop a functional and affordable original equipment manufacturer (OEM) fleet natural gas vehicle (NGV) that will also meet public demand. The States recognize the benefits and unique attributes of clean burning natural gas and understand the significant opportunity compressed natural gas (CNG) presents to save State and taxpayer dollars by encouraging an energy future that utilizes domestic energy resources to fuel our nation's transportation needs. Through the joint solicitation of a Multi-State Request for Proposal (Joint-RFP) that aggregates annual State fleet vehicle procurements, the States will endeavor to provide a demand base sufficient to support the design, manufacture, and sale of functional and affordable OEM NGVs by automotive manufacturers in the United States.

In anticipation of soliciting a Joint-RFP, the States will endeavor to coordinate with local agencies, municipalities, and companies to determine the number of NGVs each State can commit to purchase and the required specifications necessary to meet fleet needs. The Joint-RFP shall require that the ultimate cost of an OEM NGV should be comparably priced to an equivalent gasoline powered model and that warranty and reliability concerns are not compromised. Simultaneously, the States understand the need for continued development and expansion of CNG fueling infrastructure and should endeavor to encourage private investment, predicated on demonstrating an anticipated increase in State NGVs, to meet growing demand.

Pursuant to the terms of the Joint-RFP, to be executed at a later date, the States intend, where practical, to transition new fleet vehicle acquisitions, in committed volumes, to a resulting OEM NGV. Such future acquisitions should, when economically feasible, rely on traditional distribution channels that incorporate local businesses in procurement processes. In continued recognition of the benefits of CNG, the States should also endeavor to pursue fleet vehicle conversions to CNG, where economically compelling, based on a life-cycle cost analysis. The States will also reach out to fellow Governors to determine broader interest and participation in the principles and process outlined in this MOU.

This MOU embodies the principle understandings of the States but shall not create any legal relationship, rights, duties, or obligations binding or enforceable at law or in equity. Notwithstanding the foregoing, each State shall in good faith endeavor to reach a mutually agreeable and economically beneficial Joint-RFP, as contemplated herein. This MOU does not create additional state power, enhance existing state power, or interfere with federal authority or law. This MOU shall continue to demonstrate the States' understanding until execution of the Joint-RFP, or until otherwise discontinued by either State.

Set forth by:

State of Oklahoma


Mary Fallin, Governor

State of Colorado


John Hickenlooper, Governor

New Tools to Help Fleet Managers and Infrastructure Providers





Helping fleet operators judge NGVs for their specific uses – Total Cost of Ownership (TCO) Evaluation Tool

- Calculates pay-back period for natural gas medium and heavy duty vehicles; compares to diesel vehicles.
- Uses the most current information available on vehicle availability and pricing.
- Customizable for vehicle types and daily usage.
- Developed by Ricardo, a leading engineering consulting firm.

****Coming soon****

Download at: www.aga.org , www.anga.us

Drive Initiative/Ricardo TCO tool: Sample Outputs

Vehicle Segment		Class 3 Delivery			Class 4-6 Delivery			Class 7-8 Delivery		
Powertrain		Diesel	Natural Gas	NG Hybrid	Diesel	Natural Gas	NG Hybrid	Diesel	Natural Gas	NG Hybrid
Single Vehicle Lifetime TCO	\$/Vehicle Life	\$72,543	\$50,072	\$61,673	\$155,364	\$112,005	\$140,463	\$242,464	\$169,922	\$193,781
Segment TCO	\$/Vehicle Life	\$725,434	\$500,716	\$616,727	\$155,364	\$112,005	\$140,463	\$242,464	\$169,922	\$193,781
Single Vehicle Δ with Diesel		\$0	(\$22,472)	(\$10,871)	\$0	(\$43,359)	(\$14,901)	\$0	(\$72,542)	(\$48,683)
Segment Δ with Diesel		\$0	(\$224,718)	(\$108,707)	\$0	(\$43,359)	(\$14,901)	\$0	(\$72,542)	(\$48,683)
Payback Period	Years	-	0.23	2.62	-	1.95	6.75	-	2.00	4.76

Understanding the NGV Fueling Business

- A new report released by the American Gas Foundation
- Describes how natural gas fueling stations can design their business plans for local markets
- Stresses the importance of fleets as “anchor” customers
- Available at www.gasfoundation.org

Natural Gas as a Transportation Fuel

Models for
Developing
Fueling
Infrastructure

September 2012



Transforming the transportation sector to meet our energy and environmental goals:

America's natural gas industry is committed to being a part of the solution.