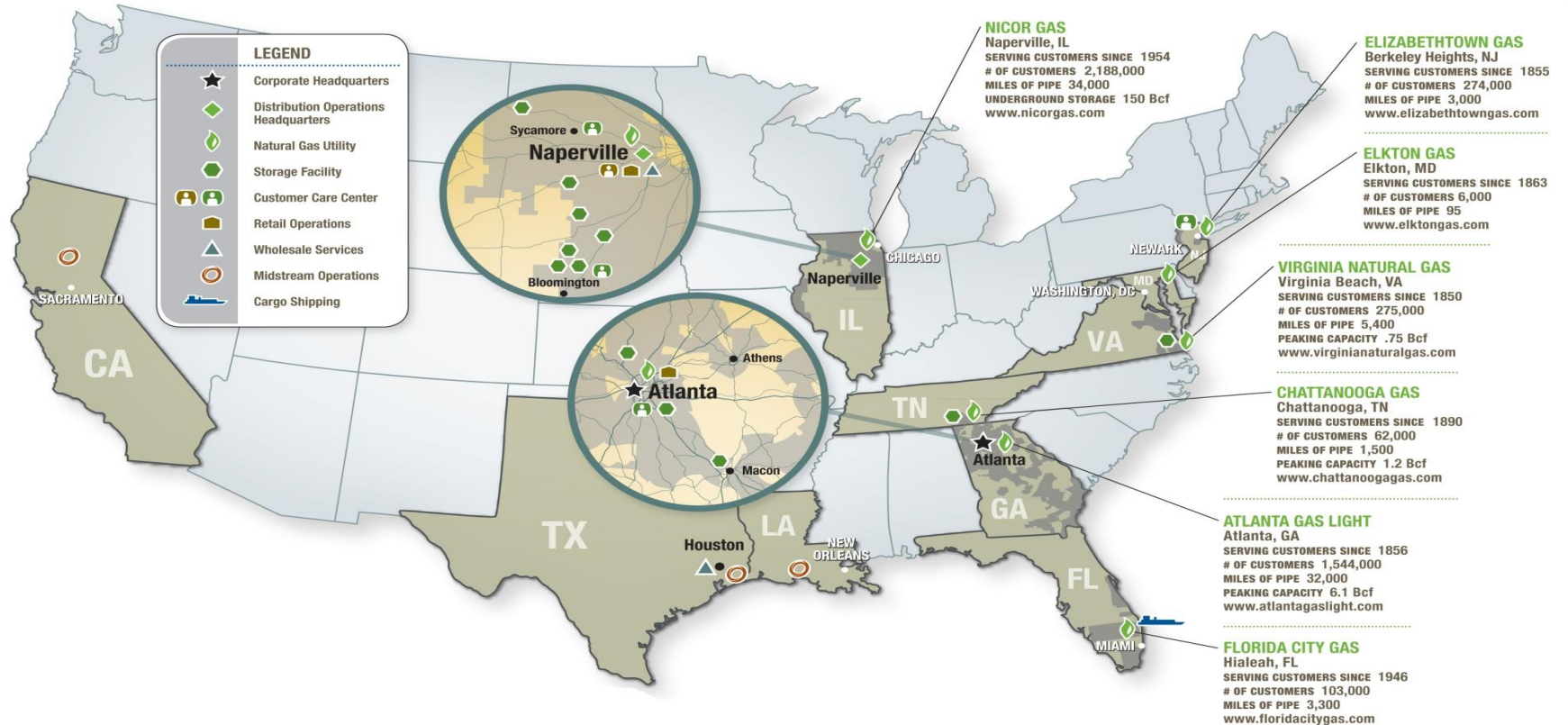


Natural Gas- 'Fueling Our Future'

Marc Rowe
Account Executive, NGV Markets

Corporate Overview



CNG Basics

- Natural Gas that is compressed for dispensing and storage, typically to 3600 psi
- Utilizes existing pipeline and distribution network to deliver gas to CNG station
- Because distribution operating pressures are lower, requires on-site compression to fill vehicles
 - Storage banking common in CNG stations
- Dispensing similar to gasoline or diesel
- CNG stored in vehicles in one or more fuel tanks

	Therms per gal.	Efficiency loss	Multiplier
Gasoline	~ 1.25	-	1.25 therms/GGE
Diesel	~ 1.38	5 – 10%	1.5 therms/DGE

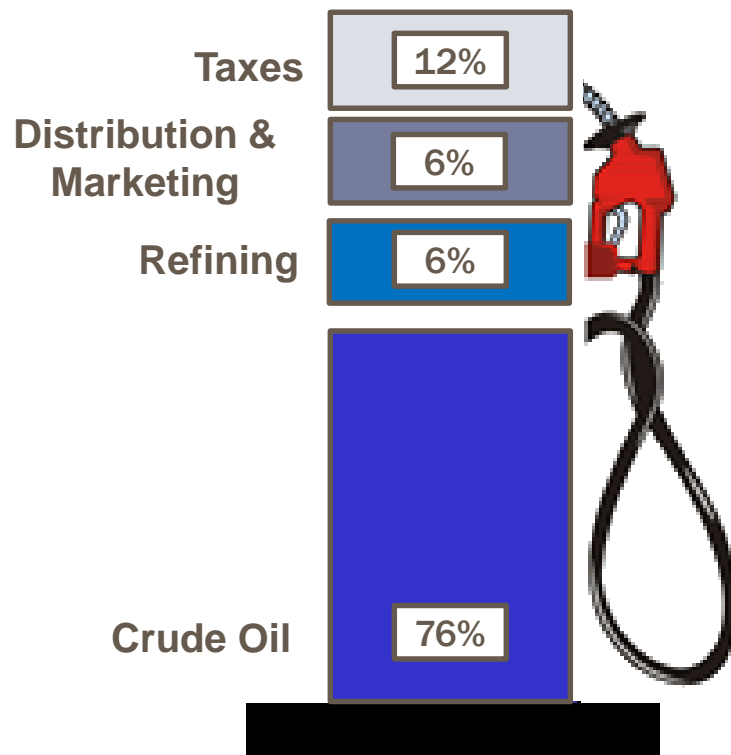
Market Drivers for NGVs



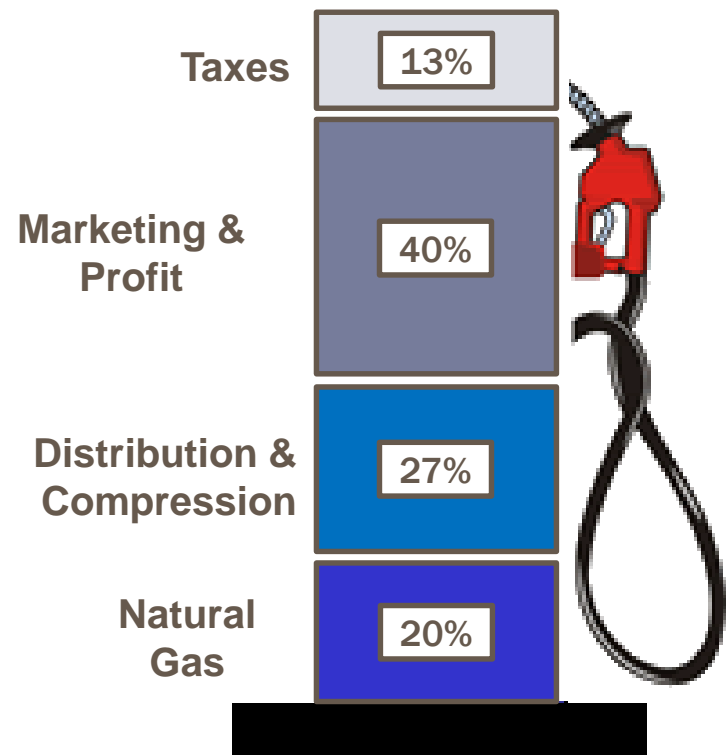
- Abundant Domestic Energy Supply
 - 98% produced in North America
 - Development of shale has increased supply projections to > 100 years
- Reduced Emissions
 - Reduced emissions up to 90% over diesel and gasoline
 - Meets EPA 2010 NOx levels without Diesel Particulate Filters, DEF, etc
- Reduced Greenhouse Gases
 - NGVs emit 13 – 23% less CO2 than diesel and gasoline
- Cost Savings
 - August 2014 Nicor Gas Cost= \$0.68 per therm
 - \$0.68 per therm x 1.25 GGE conversion factor
 - Underlying commodity = \$0.75 per GGE
 - Fuel price differential compared to gasoline and diesel forecasted to maintain and increase

Pricing Characteristics

Gasoline (July 2014)
Retail Price: \$3.85/gallon



CNG (July 2014)
Retail Price: \$2.09/GGE

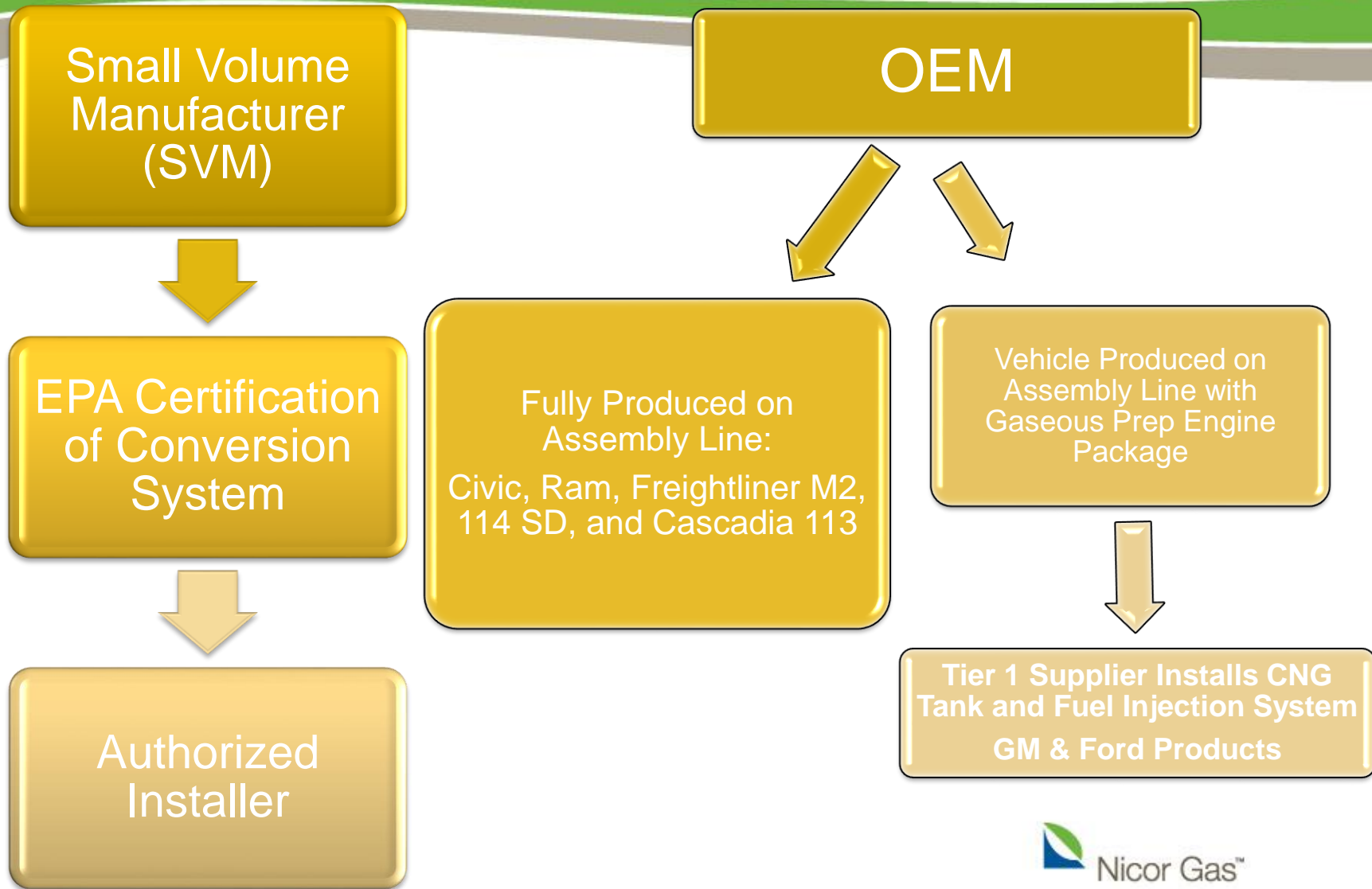


Types of Natural Gas Vehicles

- Dedicated → Runs only on natural gas
 - Typical when replacing diesel vehicle (garbage truck or transit bus)
- Bi-fuel → Two separate fueling systems enabling use of either natural gas or gasoline
 - Typical when replacing gasoline vehicle (most of light & medium duty market)
- Dual-fuel → Fuel systems run on natural gas with diesel fuel for ignition assistance
 - Traditional Heavy Duty Application

** State of Illinois currently offers \$4,000 rebate for NGVs purchased & used in IL

Original Equipment Manufacturer (OEM) vs. After-Market Conversions



Commercial Truck Classifications

Class		Gross Vehicle Weight (lbs.)	Examples
Light Duty	1	0 to 6,000	Toyota Tacoma, Dodge Dakota, GMC Canyon.
	2	6001 to 10,000	Dodge Ram 1500, Ford F-150.
	2a	6,001 to 8,500	("light duty" truck)
	2b	8,501 to 10,000	("light heavy-duty" truck)
	3	10,001 to 14,000	Dodge Ram 3500, Ford F-350, GMC Sierra 3500
Medium Duty	4	14,001 to 16,000	Ford F-450, Dodge Ram 4500, GMC 4500
	5	16,001 to 19,500	International TerraStar, GMC 5500, Dodge Ram 5500
	6	19,501 to 26,000	International Durastar, GMC Topkick C6500, Ford F-650
Heavy Duty	7	26,001 to 33,000	GMC C7500
	8	> 33,000	All tractor trailer trucks

Natural Gas Vehicles



At Home & Small Commercial Refueling

Home Refueling Appliance (Phill)

- Only commercially available device
- Fills at ~ 0.5 gallons/hr
- Costs ~\$4,000 + installation

Vehicle Refueling Appliance (VRA)

FMQ 2-36

- Fuels at ~1.0 gallons/hr

FMQ

- Fuels at ~4.0 gallons/hr



CNG Station Considerations

Station Size & Design Considerations

- Time Fill, Fast Fill or Combo?
- # of Vehicles/day & Peak Hourly Fuel
- Available backup (other stations) & redundancy needs
- Modular approach → station grows with fleet

Station Location Options

- Offsite- use existing public CNG infrastructure
- Onsite- private access only
- Onsite- public/private partnership

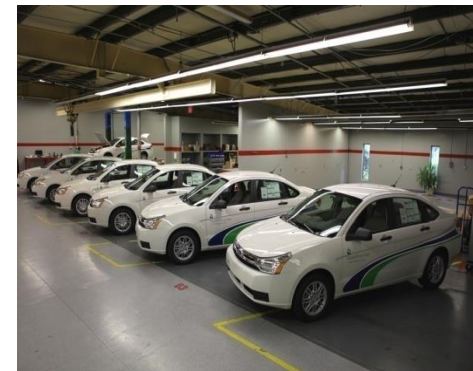
** Companies like Clean Energy, Trillium CNG, Gain Clean Fuel, Questar Fueling, Ozinga Energy offer turnkey CNG station solutions (condensed list!)

** There are ~1400 CNG stations in the US; about ½ of these stations allow public access fueling. This # is expanding monthly



Illinois Fleets with NGVs

- Nicor Gas
- Ozinga
- Waste Management
- Groot Industries
- Republic Services
- Forest Preserve of Dupage County
- Village of Downers Grove
- Pace Bus
- Abt Electronics
- Homewood Disposal
- Dillon Transport
- Paper Transport Inc
- Foodliner
- City of Chicago (+ 400 taxis)
- MetroLINK (Moline/Quad Cities)
- Springfield Mass Transit District
- Village of Algonquin
- Pace Bus (coming soon)
- MANY MORE



What is AGL Resources Doing to Accelerate Growth?

- Development and implementation of an enterprise-wide fleet conversion plan
- Support of more CNG fueling infrastructure through favorable tariff services, regulatory initiatives and AGL fleet requirements
- Development of a less costly HRA
- Increasingly lower cost to construct and operate private and public access CNG fueling infrastructure through participation
- Investment and support of new technologies and products
- Working with regulators and government agencies to implement incentives to offset early market challenges of scale



AGL is a Board Member of NGV America



NGV AMERICA
Natural Gas Vehicles for America

- Lobbies for NGV industry on Federal legislation/regulations
- “Compelling Case” workshops, marketing materials, etc.
- Coordinates NGV presence at conferences and trade shows
- NGV Forum – NGV News/dialogue <http://ngv.com/>
- CVEF: Codes and standards, incident investigation, etc.

Questions & Comments

- NGV America- <http://ngvamerica.org/>
- CNG Now- <http://www.cngnow.com/>
- Alternative Fuels Data Center- <http://www.afdc.energy.gov/>
- Industry Conferences-
<http://ngvamerica.org/forfleets/conferences/index.html>
 - Green Fleets- Oct 29-30, Schaumburg
 - NGV America- Nov 10-14, Kansas City
- Contacts available with numerous fleets operating CNG vehicles
- Numerous fleet case studies, calculators and white papers available

THANK YOU

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