

Hallandale Beach
Florida



City of Hallandale Beach

Compressed Natural Gas (CNG) Filling Station and Fleet Conversion Market Assessment

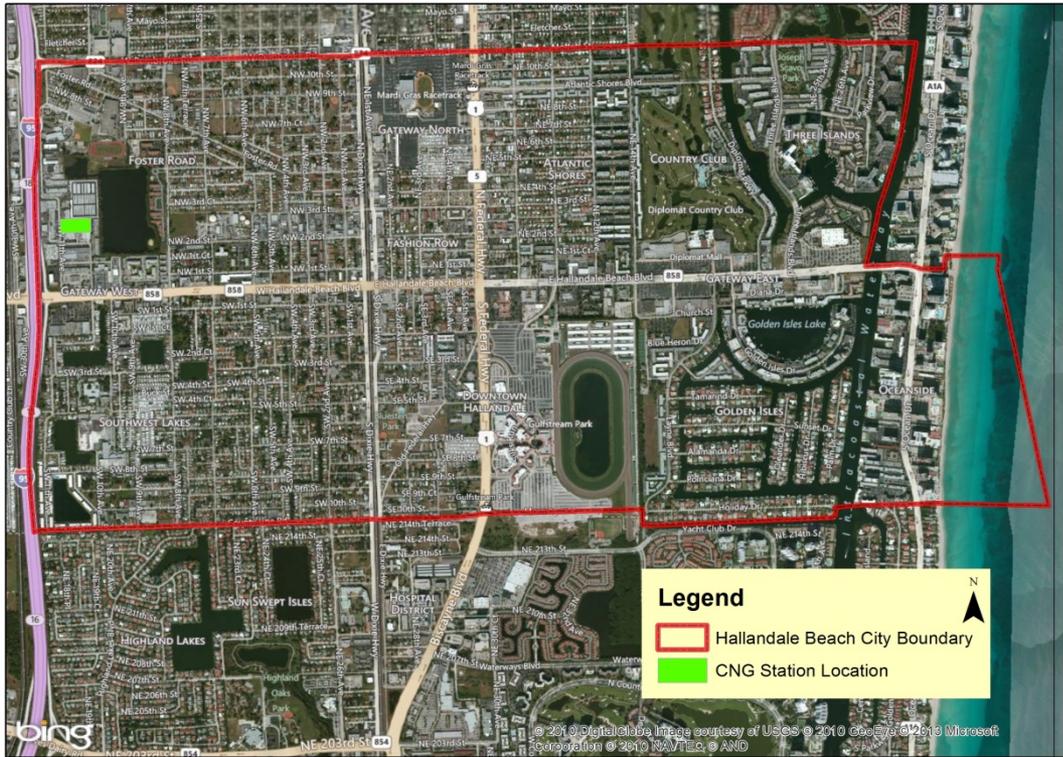
Presented by: Lambert Advisory, LLC

August 19, 2013

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- I. The Ansin Boulevard Potential CNG Location Map**
 - II. Glossary of Terms**
 - III. CNG/LNG Industry Trends**
 - i. General Trends, Public and Private Sector Trends
 - IV. General Industry Cost Factors & Considerations**
 - V. Hallandale Beach (Ansin Blvd.) CNG Station Assessment**
 - i. Facility and Fleet Conversion Cost
 - ii. Fleet Utilization Analysis
 - iii. Cost/Benefit Summary
 - VI. Recommendations**

Presentation Outline

I. The Ansin Boulevard Potential CNG Location Map



Land Area
4.22 Sq.Miles

Population
37,113

Persons/Sq.Mile
8,795

CNG Potential Location Map

II. Glossary of Terms

- Compressed Natural Gas (CNG)

- Stored in high pressure tanks



- Liquefied Natural Gas (LNG)

- Stored as a super-cooled (cryogenic) liquid



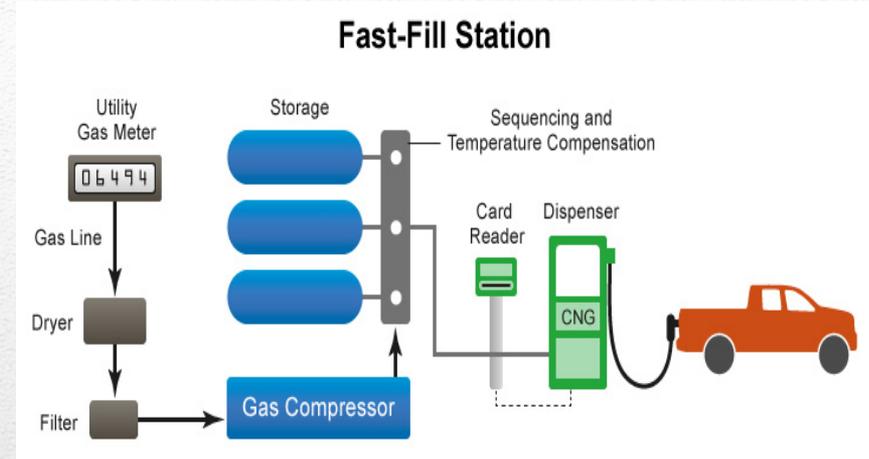
- *What's the Difference to Us?*

- LNG has significantly higher cost for both vehicle fuel storage (cooling system) and station infrastructure cost

Glossary of Terms

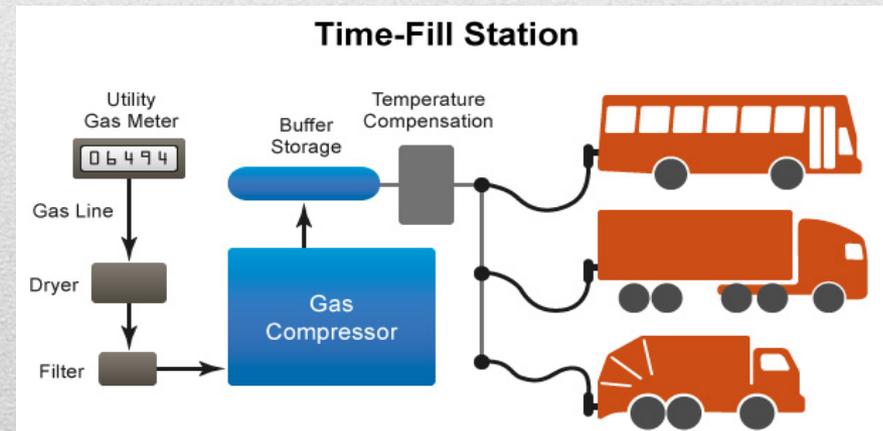
- **Fast Fill Stations**

- Best suited for retail location serving light-duty trucks and smaller vehicles
- Less than 5 min. for 20_± gallons



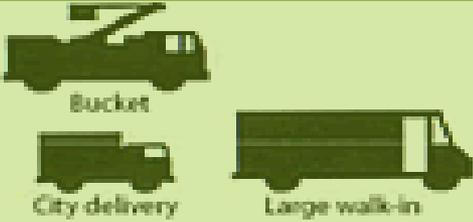
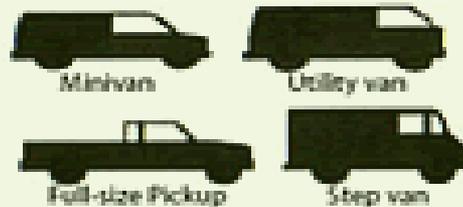
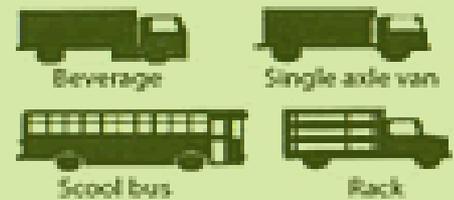
- **Time (Slow) Fill Stations**

- Primarily used for fleets where vehicle fuels at central location over night



Glossary of Terms

Vehicle Fleet Classification

 <p>Minivan Utility Van Multi-purpose Full-size pickup</p>	<p>CLASS 1 6000 lb & LESS</p>	 <p>Bucket City delivery Large walk-in</p>	<p>CLASS 5 16,001 to 19,500 lb</p>
 <p>Minivan Utility van Full-size Pickup Step van</p>	<p>CLASS 2 6001 to 10,000 lb</p>	 <p>Beverage Single axle van School bus Rack</p>	<p>CLASS 6 19,501 to 26,000 lb</p>
 <p>Walk in Conventional van City delivery</p>	<p>CLASS 3 10,001 to 14,000 lb</p>	 <p>Refuse Furniture City Transit bus Medium conventional</p>	<p>CLASS 7 26,001 to 33,000 lb</p>
 <p>Conventional van City delivery Large walk-in</p>	<p>CLASS 4 14,001 to 16,000 lb</p>	 <p>Dump Cement Heavy conventional COE sleeper</p>	<p>CLASS 8 33,001 lb & OVER</p>

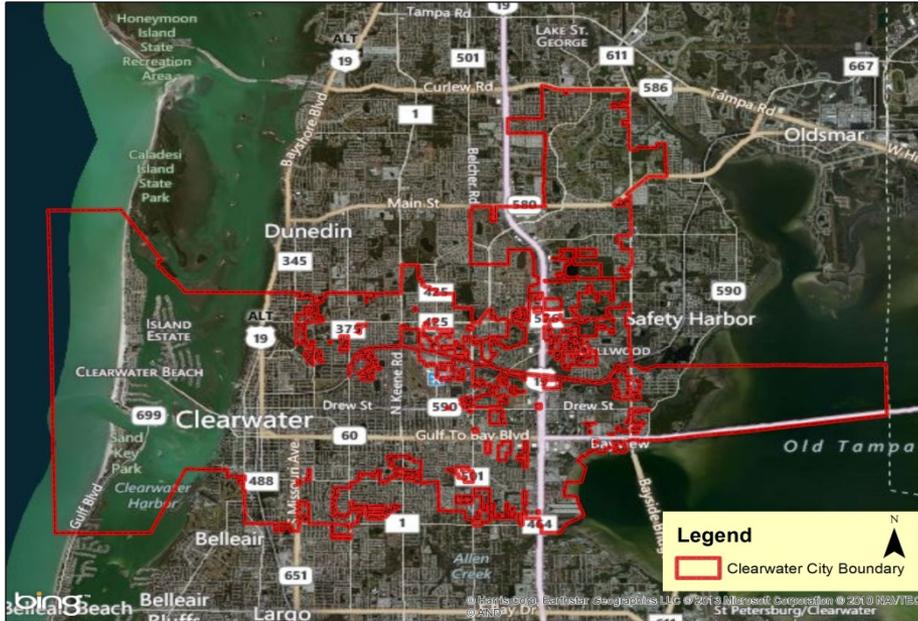
Glossary of Terms

III. CNG/LNG Industry Trends

- Domestic fuel source now estimated at 100_± years
- Conversion to CNG/LNG broadly gaining momentum since 2008
- CNG/LNG 30 to 60% cheaper than Regular/Diesel Gas
 - Class 6, 7 and 8 truck fleets
- Florida continually making in-roads into CNG/LNG
 - However, still lack pipeline infrastructure for supply

CNG/LNG Industry Trends (General Trends)

City of Clearwater (Public Waste Department)



Land Area

25.56 Sq.Miles

Population

107,685

Persons/Sq.Mile

4,214

CNG/LNG Industry Trends
(Public Sector Efforts)

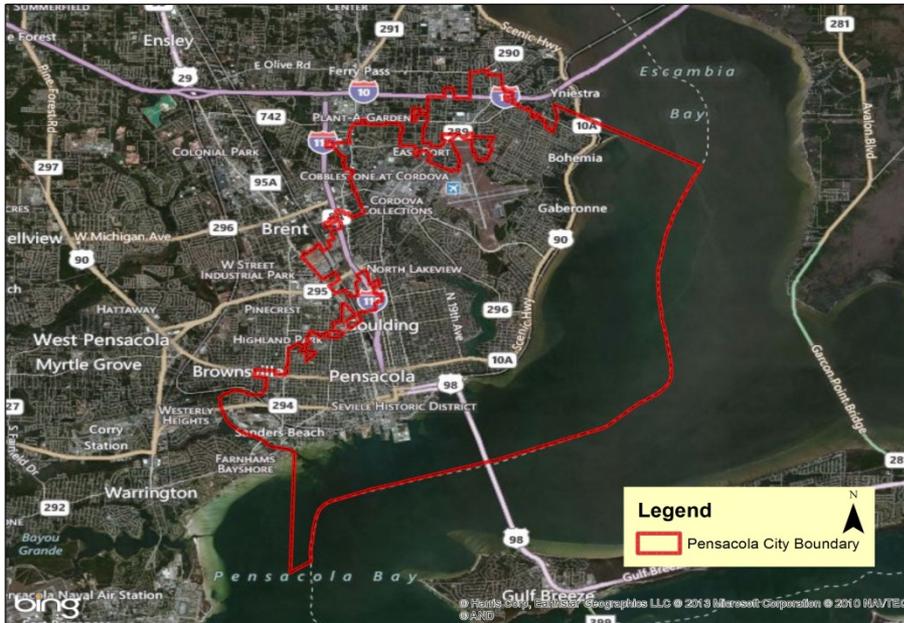
City of Clearwater (Public Waste Department)

- Partnership with Clearwater Gas Services (2012)
- \$2.0M CNG Station build-out (8 pumps)
- Replacing fleet (70 trucks)
 - \$220K New CNG vehicle; or,
 - \$65K for conversion of existing (older) vehicle
- Entered into contracts with Verizon (13 local service vans)
- 80 \pm % demand from waste trucks, 20 \pm % Other
- 7 \pm year estimated return of investment



CNG/LNG Industry Trends (Public Sector Efforts)

Energy Services of Pensacola (ESP) – owned by City



Land Area

22.54 Sq.Miles

Population

51,923

Persons/Sq.Mile

2,304

CNG/LNG Industry Trends
(Public Sector Efforts)

Energy Services of Pensacola (ESP) – owned by City

- Partnership with Emerald Coast Utilities Authority (ECUA)
- Convert 275 vehicles over 10 years
- For \$1.8 million cost, ECUA expects savings of:
 - \$1M per year in fuel
 - \$250K per year in maintenance
- Agreement calls for ECUA to pay ESP monthly charge, plus indexed fuel price
 - Current pricing \$2.05 per gallon
- 2 additional stations planned in Pensacola area

CNG/LNG Industry Trends (Public Sector Efforts)

Hillsborough County Aviation Authority (TIA)

- Plan to convert 85-115 vehicles within next 10 years
 - *Estimated savings of \$1M in fuel costs*
- Built by Clean Energy Services (T. Boone Pickens), Agreement calls for Clean Energy to:
 - *Operate and maintain “turnkey” facility for 20 years*
 - *Pay base rent, plus royalties*
- Teco Peoples gas to provide pipeline fuel (@ \$2.34/gallon)

CNG/LNG Industry Trends
(Public Sector Efforts)

Numerous other efforts in process or planned including:

- Broward County (planned)
 - Commercial Blvd., S.W. 4th Avenue, & Andrews Avenue
- Miami Dade Aviation Authority
- Palm Beach County
- City of North Miami
- Palm Beach Gardens
- City of Sunrise
- Others

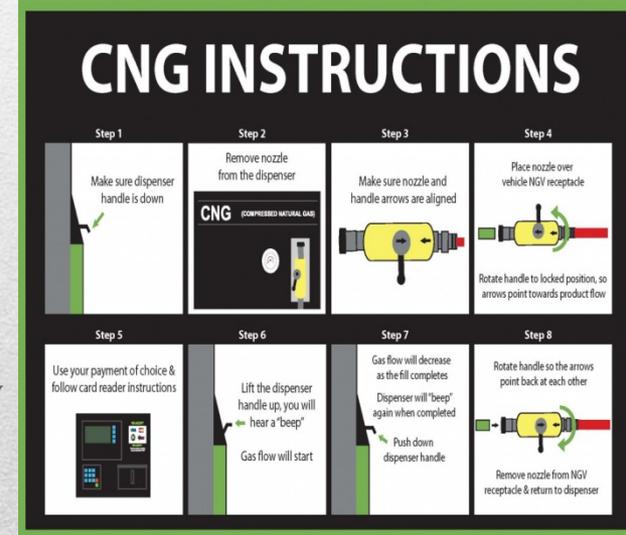
CNG/LNG Industry Trends
(Public Sector Efforts)

- Private sector driven by economics and enhancing green credentials
- Waste management companies among leading industries
 - Converting Class 7 and 8 vehicles from diesel to CNG
- Waste Management Inc. (based in Houston) has:
 - 17,000 Class 8 trucks in North America
 - Currently 1,400 converted to CNG
 - Remaining fleet to be converted within 5 years
 - 28 existing fueling stations, with 50 additional planned by 2013

CNG/LNG Industry Trends (Private Sector Efforts)

Waste Management Inc. currently operates:

- Fueling station in Pompano Beach (“Clean & Green”)
 - Opened in 2012, will serve 75 local trucks
 - Open to private sector and governments, including
 - Cooper City, Coral Springs, Margate, Parkland Plantation, among others
 - Built by ET Environmental (paid for by Waste Management)
 - Current pricing is \$2.20 per gallon
- Also operate station in Sarasota with plans to complete stations in Palm Beach and Tampa Bay this year



CNG/LNG Industry Trends (Private Sector Efforts)

- Choice Environmental opened station in Pompano Beach
 - Fueled by Teco Gas
- Waste Pro (in partnership with Clean Energy) to build major facility in Ft. Pierce
 - Plan to convert 150 trucks
- JJ Taylor (Beer Distributor) converting 95 trucks with plans to build fueling station in Tampa and Ft. Pierce
- Several major companies testing pilot programs including:
 - Walmart, UPS, Staples, Ryder, Tysons Food

CNG/LNG Industry Trends (Private Sector Efforts)

IV. General Industry Cost Factors and Considerations

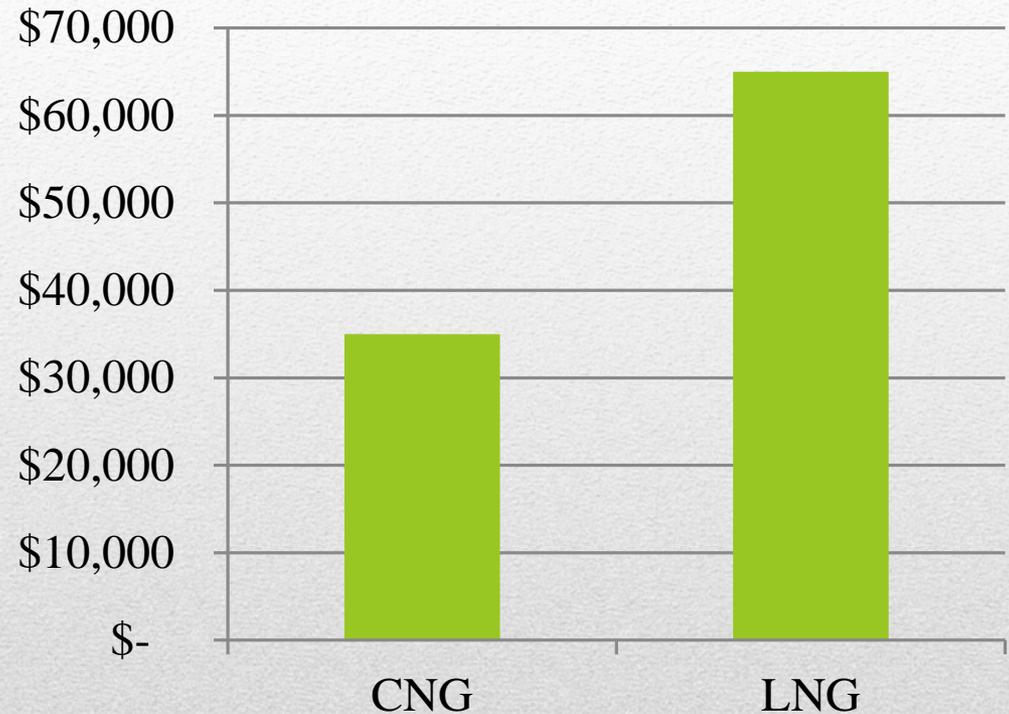
- Development of CNG/LNG fueling stations ramping up quickly
- Clean Energy currently planning to build 150 new stations in throughout US
 - Along most major trucking routes
 - 250 to 300 miles apart
 - Working with Flying J and Pilot



Cost Factors & Other Considerations

- Companies with large Class 7/8 fleets cautious to convert based on costs
- Converting trucks to CNG/LNG can cost from \$35,000 to \$80,000
 - Ford indicates majority of Class 5 & 6 vehicle up-fit cost of \$10k to \$13K

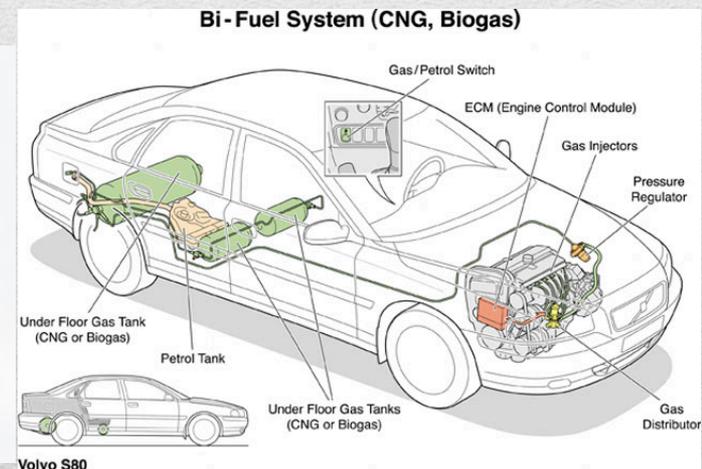
Premium in New CNG/LNG Truck Replacement Cost over Diesel



Cost Factors & Other Considerations

- Major auto manufacturers jumping in the game including:

- Honda (market leader)
- Ford
- BMW
- Volvo
- Chevrolet – Cavalier model



Cost Factors & Other Considerations

V. Hallandale Beach (Ansin Blvd.) CNG Station Assessment

Addressing economic options for Hallandale Beach CNG station build out and operations

- CNG (\$1-\$2M build out) vs. LNG (\$2-\$3M build out)
 - Price differential of Quick fill vs. Slow fill pumps
- Physical plant and operating considerations
 - Size and type of storage tank
 - CNG Product conditioning systems (driers) very costly
 - Control systems vary widely between suppliers
- Maintenance shop upgrades \$300,000_±
- Need to thoroughly assess supplier options

Ansin Blvd. Site Assessment

Total Fleet (2012)	Miles Driven (2012)	Gallons Consumed (2012)	Fuel Cost (2012)	Avg. Cost/Gallon (2012)	Est. \$ to Convert/Purchase (Light Duty)	Est. \$ to Convert/Purchase (Mid Duty)	Est. \$ to Convert/Purchase (Heavy Duty)
125	380,567	97,806	331,492	\$3.40	\$11,000	\$40,000	\$65,000

- Assessed City’s vehicle fleet (not including Police and Fire)
- Prepared estimates of new vehicle purchase and/or CNG conversion costs based upon age, mileage, and/or type of vehicle
 - Estimated mid-range cost = \$3.6M
- Additional cost for upgrade to vehicle maintenance facility
 - Estimated to be \$250K to \$350K

Hallandale Beach Fleet Overview

City of Hallandale Beach (Vehicle Fleet)	
City's Existing Fleet – Miles Driven (2012)	380,500
Regular/Diesel Gallons of Fuel Consumed (2012)	97,800
Annual Diesel/Regular Fuel Cost (2012)	\$331,500
Est. Annual CNG Fuel Cost (2012) (@ 50% Regular/Diesel)	<u>\$165,750</u>
Est. CNG Fuel Savings/Year (2012 \$'s)	\$165,750
Total Marginal Vehicle Conversion Cost (Mid Range)	\$3,596,000
Number of Years for Investment Payback	21.7
- Investment Payback (if Regular/Diesel increases by 25% and CNG cost remains constant)	14.5
- Investment Payback (if Regular/Diesel increases by 50% and CNG cost remains constant)	10.5

Note: City of Hallandale Beach; fleet does not include Police or Fire Depart. vehicles

Hallandale Beach Fleet Upgrade Analysis

VI. Recommendations

- ✓ Beyond environmental benefits, City should consider converting fleet only if it can utilize privately funded station with multiple fleet users
 - ✓ Easily accessible location of Ansin Blvd. property promotes opportunity
- ✓ City should seek CNG/LNG developer partner
 - ✓ City can contribute land
 - ✓ City guarantees minimum annual purchase
- ✓ City's land contribution value realized through:
 - ✓ Fixed land lease payment;
 - ✓ Revenue participation; or,
 - Contribute land for guaranteed reduced CNG fuel cost over long term.

Recommendations
