

NATURAL GAS

America's Natural Energy

- **DISCOVER THE DIFFERENCE** -

Tampa Bay Regional Planning Council Briefing 6/4/2012

*Chuck Warrington, Managing Director
Clearwater Gas System*



Overview

- Domestic & Plentiful --- ***America's Energy***
- Energy Efficient --- ***3X the Energy***
- Environmentally Friendly --- ***1/2 the Pollution***
- A Lifestyle Choice --- ***Residents, Businesses & Industry Prefer Natural Gas***
- Economical --- ***1/2 the Price \$\$\$***
- Reliable --- ***Available During & After Storms***
- National Security --- ***Natural Gas Vehicles***



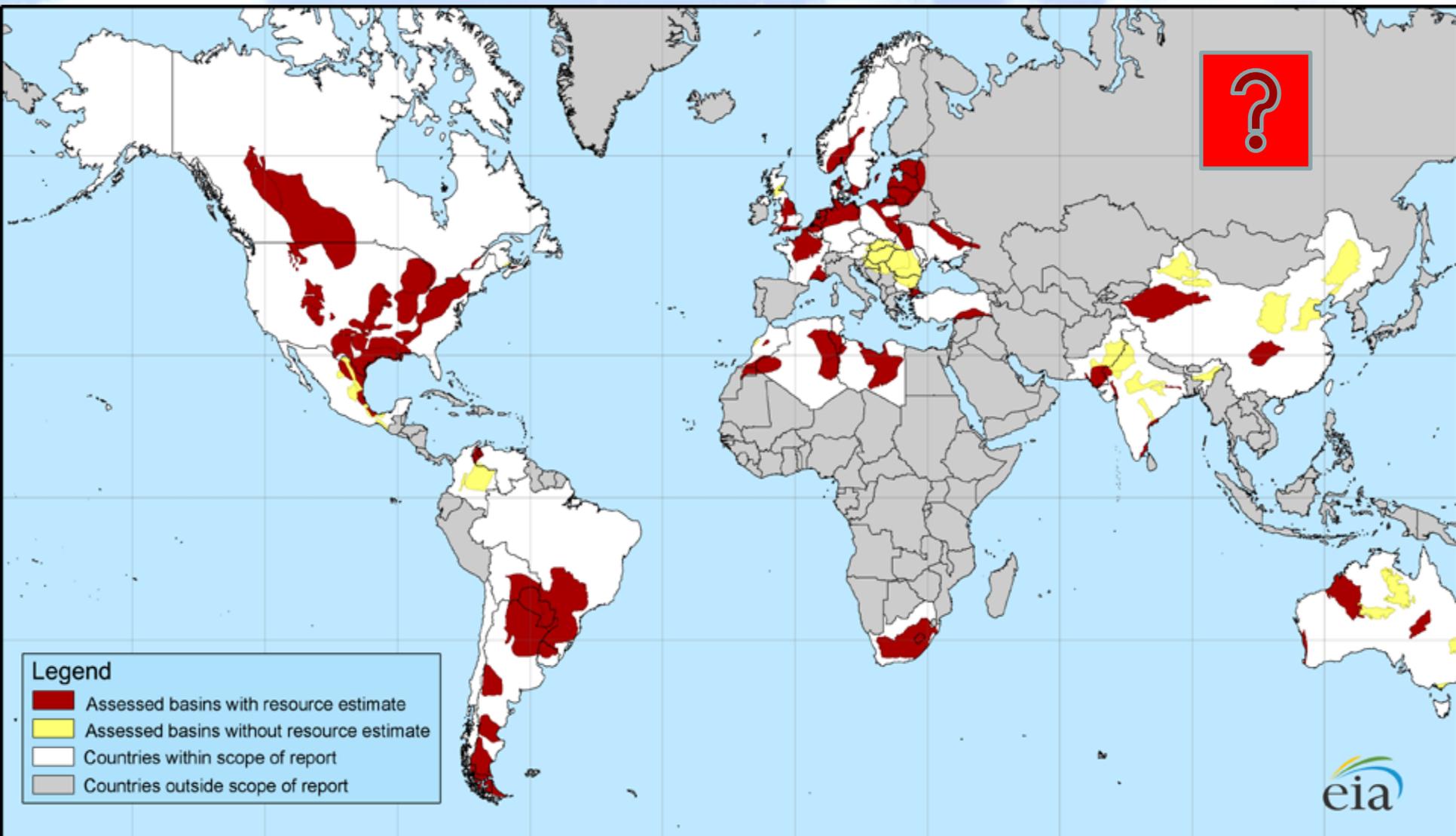
National Security & Florida's Gas Use

- Domestically available – can help us reduce our dependency on foreign oil --- **\$1.5 Billion/Day.**
- Enough gas to meet the needs of our growing population --- **Natural Gas industry has grown with the State to meet it's energy demands.**
- **U.S. has more known Natural Gas reserves than Saudi Arabia has known Oil Reserves.**
- For over 50 years, the State has relied on natural gas (with or without hurricanes) --- **Natural Gas is an integral component in maintaining fuel diversity in the State of Florida.**

Shale Gas in America *Is the Game Changer*

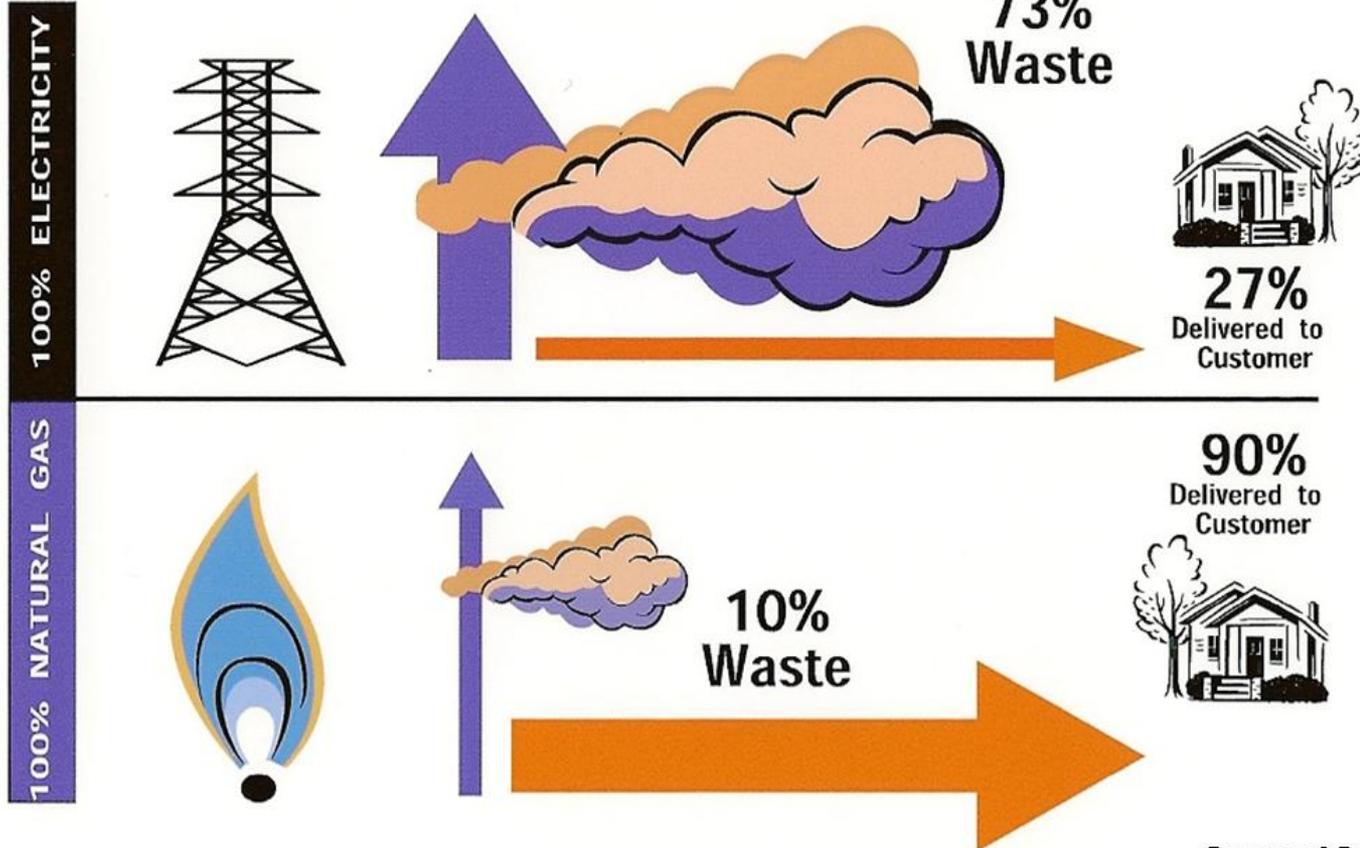


Shale Gas is Worldwide --- U.S. 27%



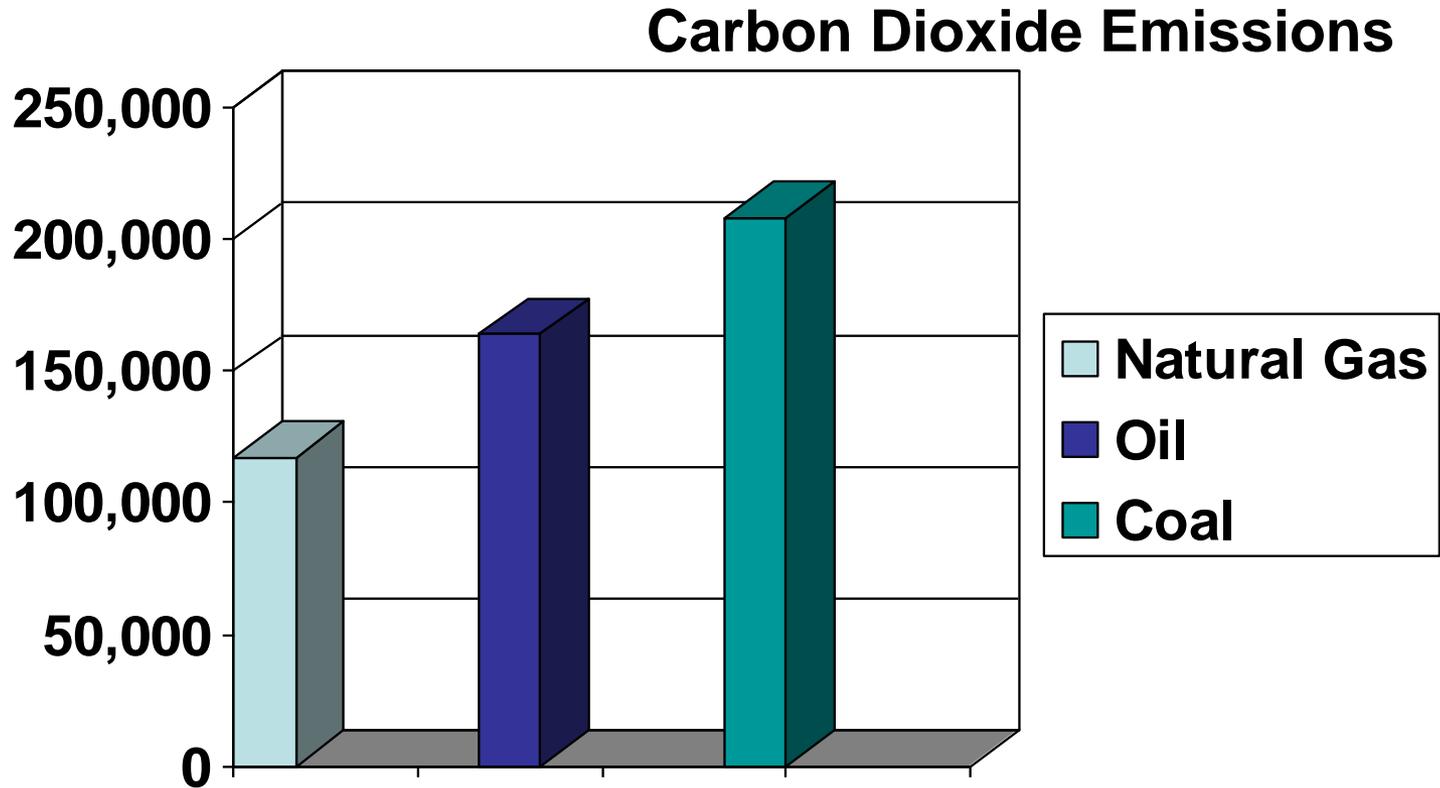
Natural Gas is Efficient & Green

Natural is Cleaner, More Efficient Than Fossil Fuel - Fired Electric Power



Source: AGA

Clean Burning Fuel



A Lifestyle Choice

- Consumers want the benefits of natural gas
 - endless supply of hot water
 - precision cooking
 - warm homes and swimming pools when it's cold outside.
- Industries & and businesses benefit
 - multiple solutions from fuel that helps them compete in global markets



Quality of Life & Economic Development

- Growing popularity among developers, builders & residential customers --- **1/2 the cost of electric**
- Green sustainability interest from cities and residential communities --- **lower carbon footprint**
- Emergency generators + available for hot water and cooking during power outages in homes and businesses
 - **Businesses** prepared to stay open to meet community needs after a storm (**Publix is an example**)
 - **Hospitals** and other critical function facilities looking to NG for backup generation (**Morton Plant is example**)
- Natural Gas Vehicles --- **Save \$\$\$ & Environment**

City of Clearwater's Green Solutions

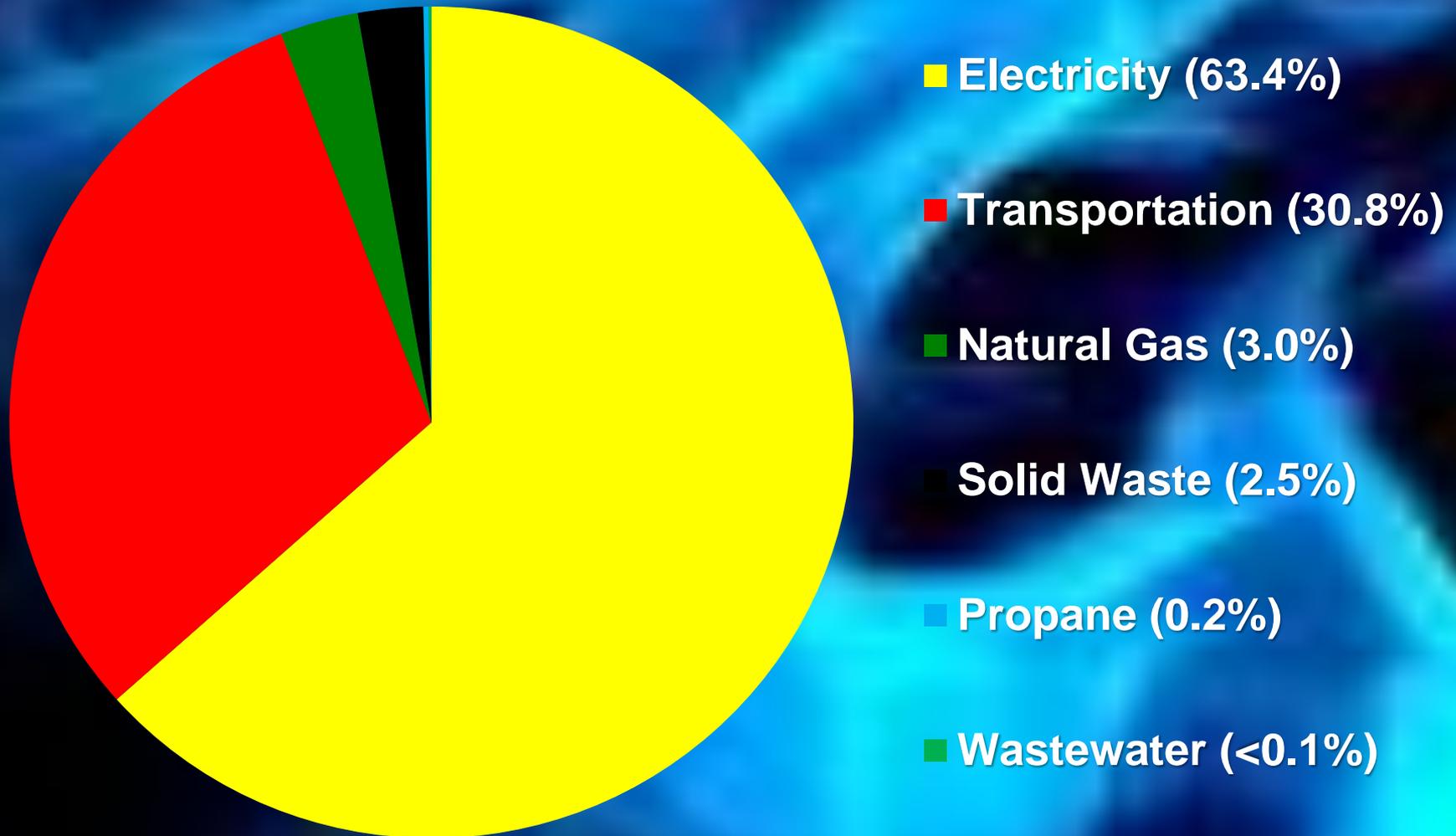
- **Energy audits in City buildings**

- **Honeywell Performance Contract**
- **Identified energy & water savings**
- **Greenhouse gas reductions (GHG)**
- **Spent \$3M - Save \$7.5M over 15yrs**

- **Greenprint Study by City**

- **Clearwater Community-wide study**
- **Inventory Community GHG emissions**
- **Establish Community Recommendations**
- **Received Tampa Bay Planning Council Regional Recognition**

Clearwater's Community GHG Emissions Findings



Reduce Transportation GHGs

- **Utilize Clearwater Gas System to reduce transportation emissions**
- **CGS Partnership with Solid Waste Department & Fleet Operations**
- **Initially convert garbage trucks to natural gas (Save > \$18K/yr/truck)**
- **Next Utility & Other Fleet Vehicles**

Clearwater Gas System Natural Gas Filling Station

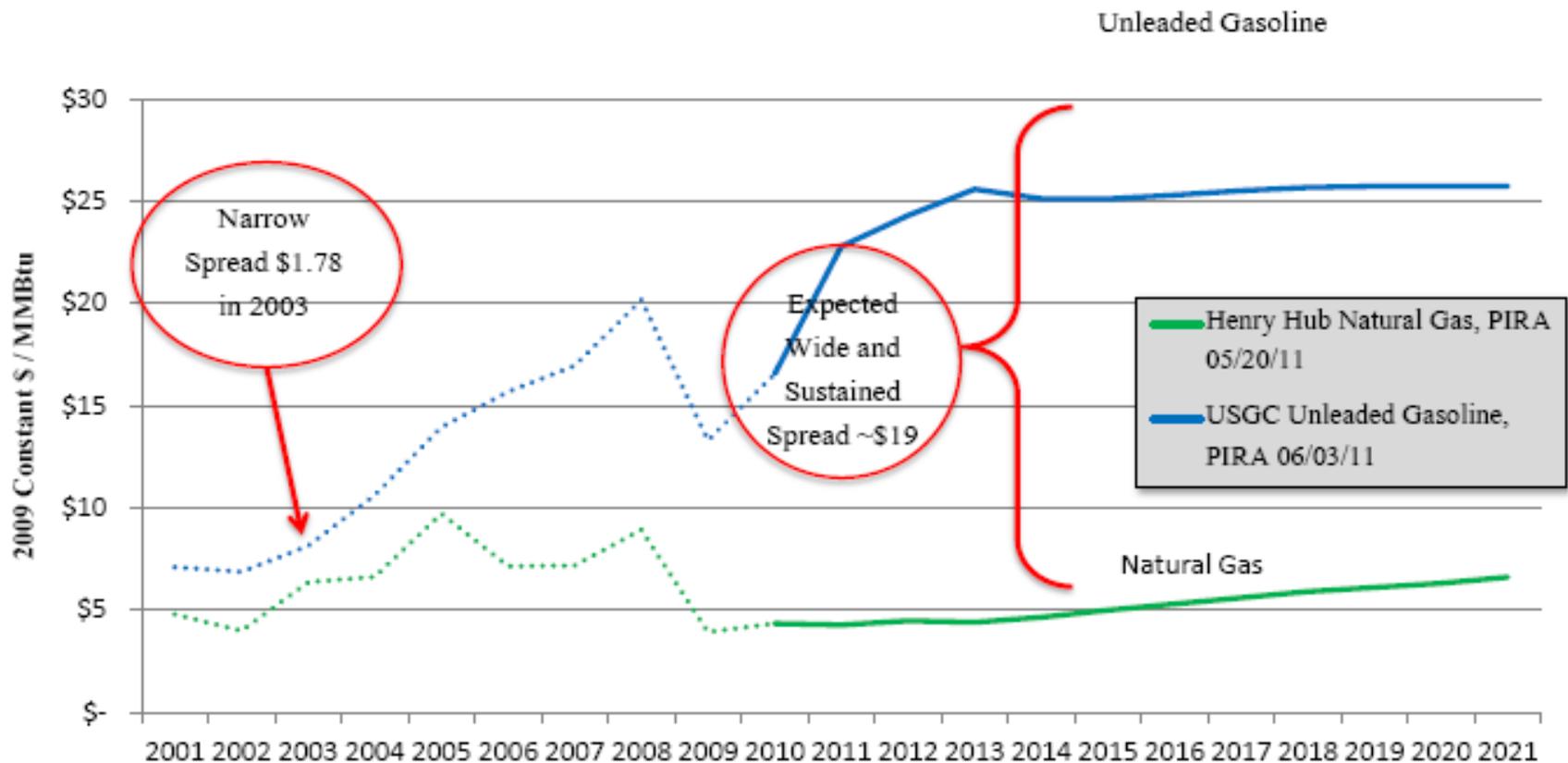
- **1st public access Natural Gas filling station in the Tampa Bay area + 1st REAL station in FL**
- **Opened in Oct 2011 – Public in Jan**
- **Reduce CO₂ emissions by 25-40%**
- **\$2.05 per Gas Gallon Equivalent**
- **Opportunities to partner with other Public & Private fleets**

Clearwater's NGV Station



- **NGV** – a vehicle that uses CNG or LNG fuel
- **CNG** – natural gas @ 3600 psi, 70°F
- **LNG** – natural gas @ 3.6 psi, -260°F
- **Bi-Fuel** – uses natural gas or gasoline/diesel
- **Dual Fuel** – uses both natural gas and gasoline/diesel
- **GGE** – gasoline gallon equivalent (1.25 therms)
- **DGE** – diesel gallon equivalent (1.40 therms)

Price of Natural Gas vs. Unleaded Gasoline



Even if NG doubled in price, future NG / Gasoline spread should be adequate and sustainable to incent more fleet conversions.

Sources: PIRA Energy Group, Henry Hub

Advantages

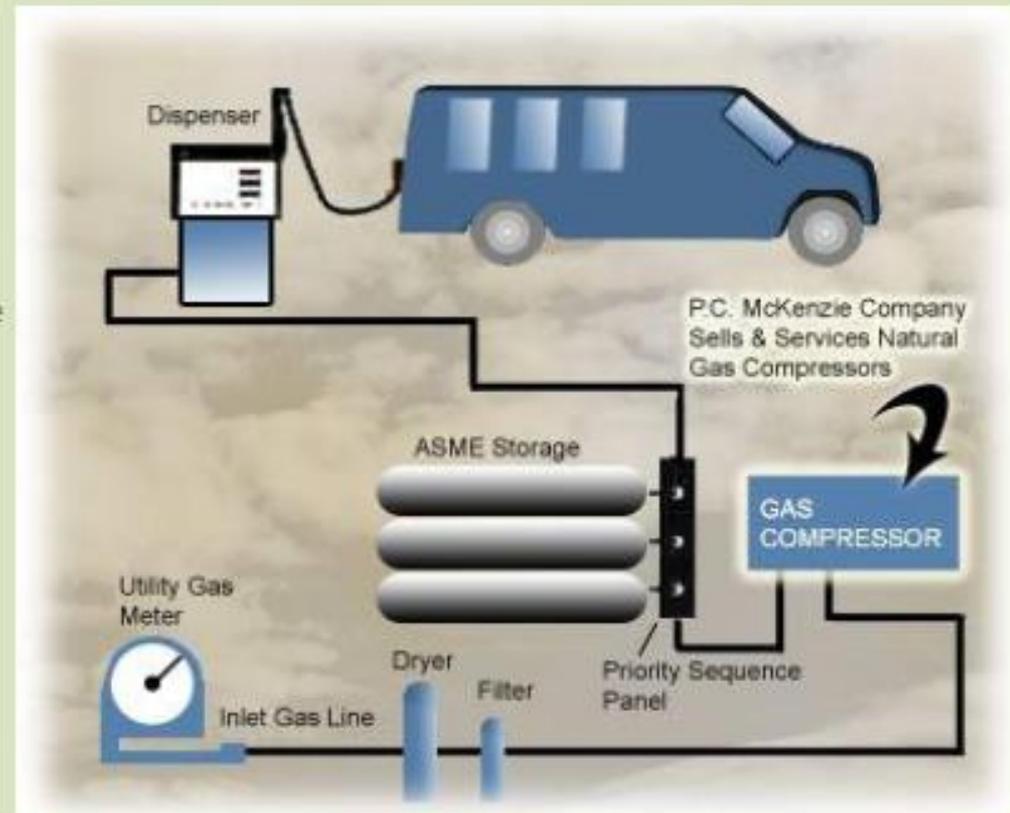
- Shorter fill times
- Accommodates vehicles not stored on site
- Public vehicles can be served
- Suited to peak load

Disadvantages

- High initial cost and frequency of maintenance
- Lost fill rate while compressor replenishes storage.

Major Costs

- ~ (\$4800/GGEh or \$5300/DGEh)
- Gas Dryer
- Compressor/Motor Assembly (Redundancy)
- Storage
- Control System
- Dispenser/Card Reader



Time Fill Fueling

Advantages

- Lower initial cost driven by compressor size and absences of storage.
- Lower maintenance cost due to lack of compressor cycling.
- Minimal labor to fuel vehicles.
- Modular construction suited for fleet expansion.

Disadvantages

- Vehicle remains on site while fueling (~ 8 hours)
- Typically excludes public use

Major Costs

- ~ (\$4000/GGEh or \$4400/DGEh)
- Gas Dryer
- Compressor/Motor Assembly (Redundancy)
- Control System
- Dispenser Set Up



Key NGV Applications in Florida

- Solid Waste Refuse
- Municipal/Private Fleet Operations
- Airport
- Transit
- Distribution





CNG Stations in Florida



Public ●
 Under construction ●

Currently, only 3 stations in Florida open to the public. Lack of fueling infrastructure is a major inhibitor to fleet conversions.

Public CNG Stations in Florida

Recent Announcements

- **HART Earns Phase III TIGER Grant for \$2.3M**
- **GM Announces Bi-Fuel Pickup for 2013**
- **Ford Announces CNG F-350 for 2012**

Summarize

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Our Request to TBRPC

Update your “**FUTURE OF THE REGION: A Strategic Regional Policy Plan for the Tampa Bay Region**” to:

- Recognize **NATURAL GAS** as America’s clean, abundant, and economical energy resource inclusive **within your energy policy**, and
- Promote regional energy conservation by “**direct use**” of **NATURAL GAS** for homes, businesses, industries & transportation.

Questions

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