Executive Briefing: LNG Supply for Marine Vessels

June 2011
Agenda

- Clean Energy Business Brief
- LNG Benefits
  - Cheaper
  - Cleaner
  - American
- Economics
- LNG Supply & Logistics
About Clean Energy
(NASDAQ: CLNE)

Largest Alternative Transportation Fuel Provider

500+ Fleet Customers
20,000+ Natural Gas Vehicles
230+ Natural Gas Fueling Stations

Compressed Natural Gas (CNG)
- Taxis & Shuttles
- Government Vehicles
- Telecom

Liquefied Natural Gas (LNG)
- Public Transit
- Trucking & Marine
- Refuse Hauling

Leading Provider of Natural Gas As a Transportation Fuel

About Clean Energy
(NASDAQ: CLNE)
The Clean Energy Solution

Full-Service Integrated Solutions
More Than Just Fuel
Clean Energy Business Updates

- **IMW Acquisition**
  - Manufactures best available CNG equipment
  - Complete vertical integration
  - Worldwide presence, every continent, > 20 countries

- **Northstar Acquisition**
  - Premier LNG station construction company
  - Manufacturers LNG components
  - Service and support
Port of Long Beach Station
Largest Retail LNG Fueling Station in the World

- 6 Dispensing Lanes
  - Expandable to 10 lanes
- 50,000 Gallons of Storage
  - Expandable to 100,000
- 25,000 gallons per day (DGE)
- 1,000 NG Trucks Operating
- Offers 3 Grades of NG Fuel
  - CNG, Blue LNG, Green LNG
Clean Energy Fueling Infrastructure Examples
Why Natural Gas?

**Cheaper**  **Cleaner & Greener**  **American**

Logos for UPS, AT&T, Pepsi, Walmart, Sysco, and H-E-B.
Cheaper Spread Between Oil and Nat Gas Is Increasing

Crude Oil & Natural Gas Monthly Average Commodity Prices
(Energy Equivalent Barrel of Oil Basis)

Today’s Oil Price

Today’s NG Price

Future prices from Sep-2010

Sources:
- Historical: US Energy Information Administration
- Futures: NYMEX (Oil 5 Years, Gas 10 Years)
- NG $/mcf/$/bbl = Equivalent Barrel of Oil
Natural Gas Reduces Pollution

Natural Gas Emission Reductions Over Marine Diesel Engines

Source: Elliott Bay Design Group, April 18, 2011
Cleaner: Natural Gas Reduces Greenhouse Gases

Carbon Intensity

Petroleum Fuels

- Gasoline: 97 gCO₂ e/mile
- Diesel: 95 gCO₂ e/mile

Natural Gas Fuels

- N. American Natural Gas: 68 gCO₂ e/mile, 29% GHG Reduction
- Biomethane (Renewable Landfill Gas): 11 gCO₂ e/mile, 89% GHG Reduction

Source: CARB Fuel Pathways Analysis
American Energy Security: OPEC Provides 1/3rd of Our Oil

Source: EIA http://tonto.eia.doe.gov

Natural Gas Sources for US Consumption

- US 80.0%
- Canada 16.4%
- Mexico 0.2%
- Others 3.3%

OPEC Imports (Barrels per Day)

US EIA 2009

$1+ Billion per Day on Imported Oil
U.S. natural gas deposits are far more widespread and larger than U.S. coal deposits.
Economics
Background Information

- Energy Conversion: “Diesel Gallon Equivalent” (DGE)
  - 1 Gallon of LNG = 82,000 BTU
  - 1 Gallon of Diesel = 139,000 BTU
  - 1.7 Gallons of LNG = 1.0 Gallon of Diesel
    - 139,000 / 82,000 = 1.7
  - 1.39 Therms = 1 DGE

LNG Price Components
- Natural Gas Commodity
- Infrastructure, Production & Transportation
Natural Gas Savings: Greater than $1.50 per Gallon and Climbing

- LNG Savings: $1.50
- LNG per DGE: $2.00
- Diesel: $3.50
LNG Supply & Logistics
Liquid Natural Gas (LNG) Basics

- Professional Grade Fuel
- Ideal for Heavy Duty Engines
  - Lower cost tanks
  - Storage volume is half of CNG
  - System weight is less than CNG
- Pipeline Gas Cooled to -260F
- Produced at LNG Plants
- Delivered in Trailers to Fuel Stations
- Rapid Fueling
LNG Production Plants Make the Fuel

Clean Energy’s Newest LNG Plant in Boron, California

$80 million cost

180,000 gal/day

Expanding to 270,000 gal/day

1.8 Million Gallons Storage

Clean Energy also owns the Pickens LNG Plant near Houston and draws from many other LNG plants
Supply Assurance Plans

- Supply Diversity – Multiple LNG Production Sources
- Resources – 60 LNG Delivery Trailers
- Advance Contingency Planning
- Delivery Trailer Staging
Methods for Fueling Vessels
Option 1: LNG Dispensed to Vessel from Trailer
Methods for Fueling Vessels
Option 2: LNG Dispensed from Shore Station

Sunndalsøra terminal
- Process energy to Hydro Sunndal
- Supplies local distribution grid
- Hub for regional distribution by semitrailers
Methods for Fueling Vessels
Option 3: Bunker Barge
Natural Gas for Transportation

Cheaper  Cleaner &  American
Low Carbon

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