



Clean Energy[®]

North America's leader in clean transportation

Executive Briefing: LNG Supply for Marine Vessels

June 2011

Agenda

- Clean Energy Business Brief
- LNG Benefits
 - Cheaper
 - Cleaner
 - American
- Economics
- LNG Supply & Logistics

Largest Alternative Transportation Fuel Provider

500+
Fleet
Customers

20,000+
Natural Gas
Vehicles

230+
Natural Gas
Fueling Stations

Compressed Natural Gas (CNG)

Liquefied Natural Gas (LNG)



Taxis & Shuttles



Government Vehicles



Public
Transit



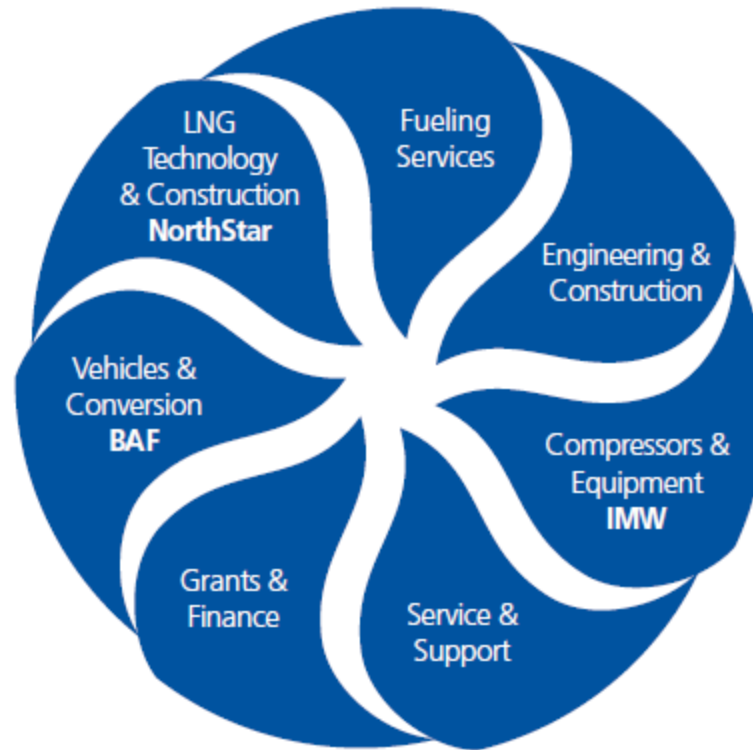
Telecom



Refuse
Hauling



Trucking & Marine



Full-Service Integrated Solutions
More Than Just Fuel

- 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

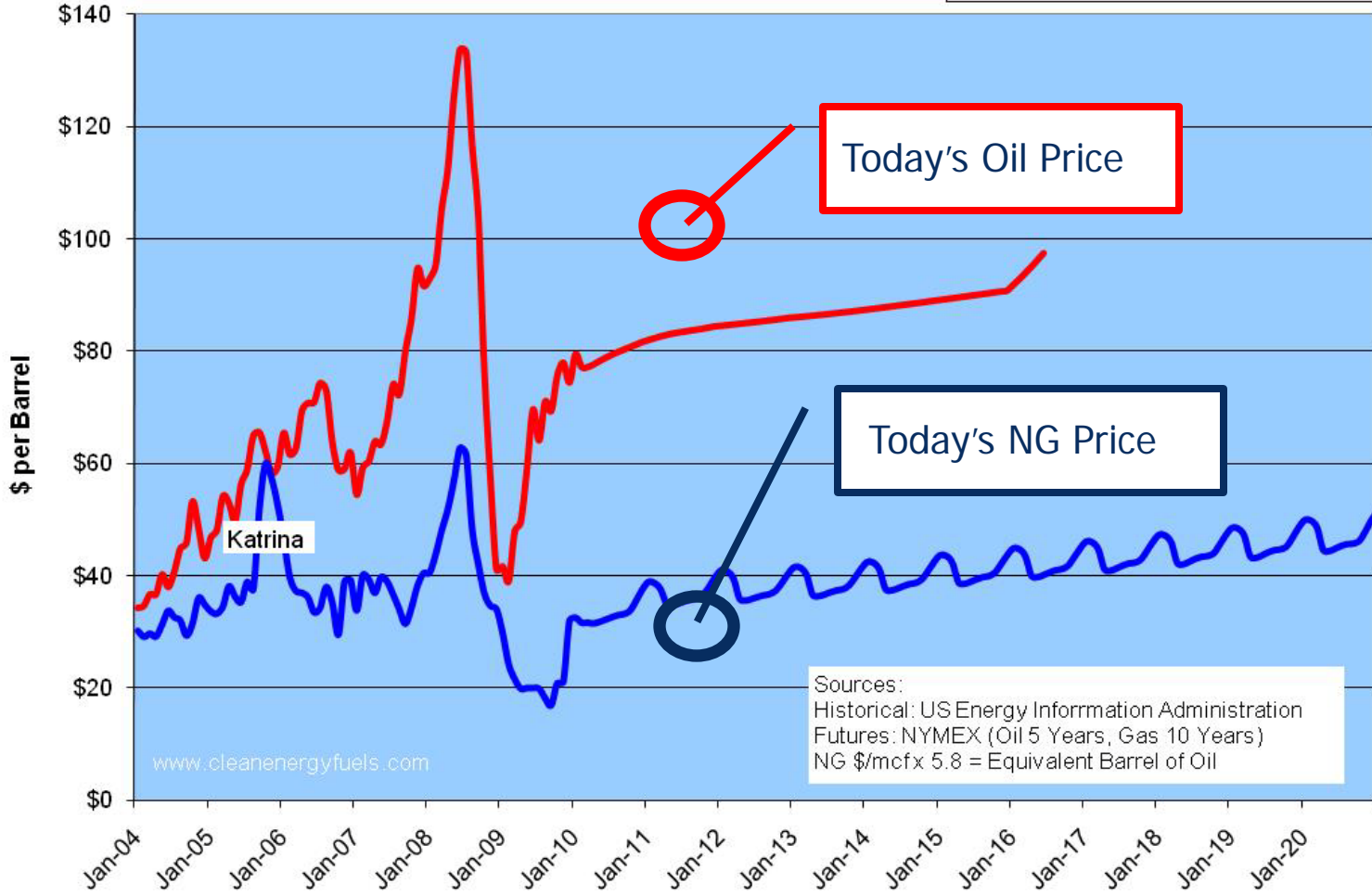


Cheaper Spread Between Oil and Nat Gas Is Increasing



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

— Crude Oil West TX Intermediate
— Natural Gas Wellhead



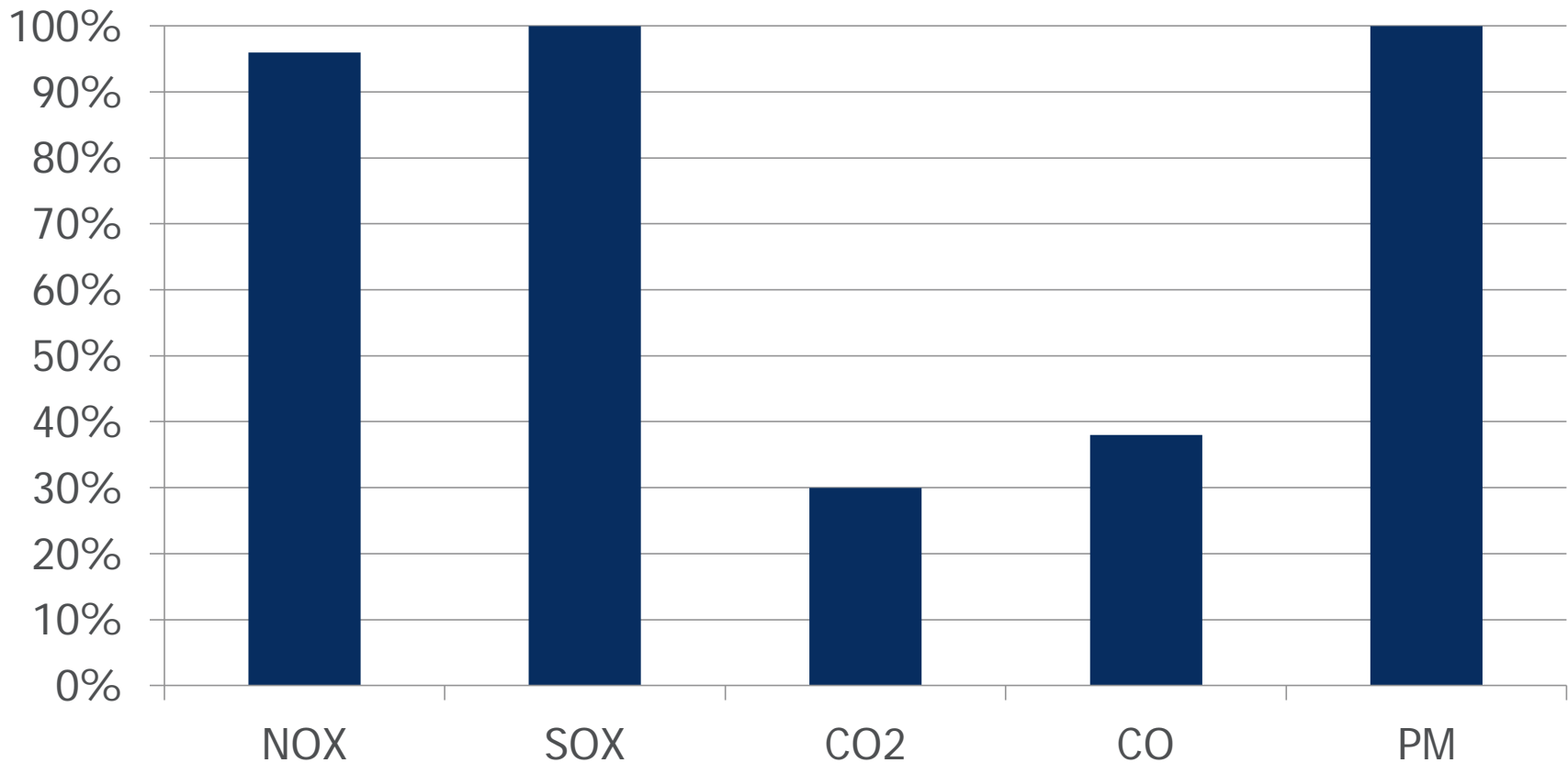
Future prices from Sep-2010

Sources:
 Historical: US Energy Information Administration
 Futures: NYMEX (Oil 5 Years, Gas 10 Years)
 NG \$/mcf x 5.8 = Equivalent Barrel of Oil

www.cleanenergyfuels.com

Natural Gas Reduces Pollution

Natural Gas Emission Reductions Over Marine Diesel Engines

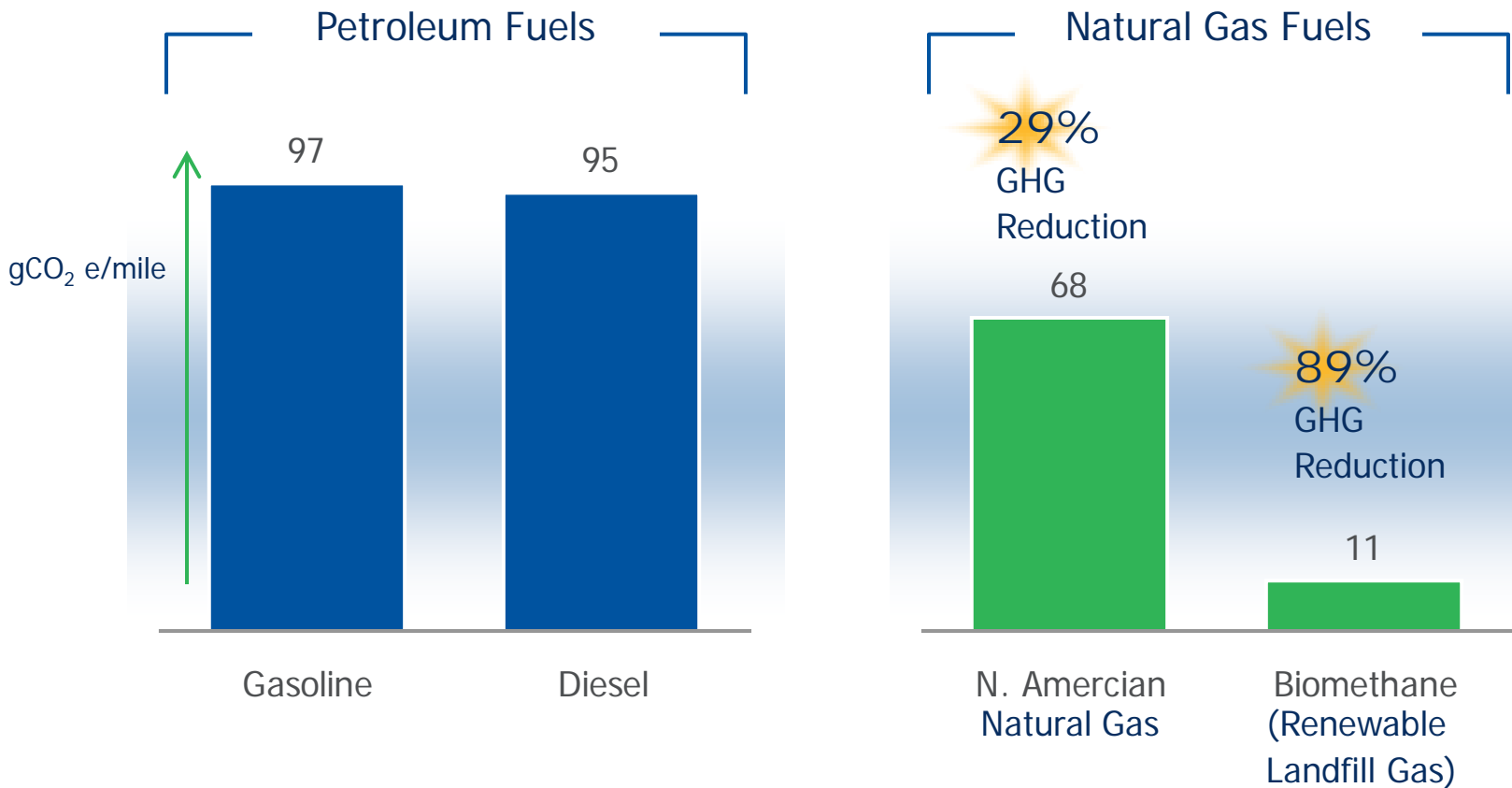


Source: Elliott Bay Design Group, April 18, 2011

Cleaner: Natural Gas Reduces Greenhouse Gases



Carbon Intensity

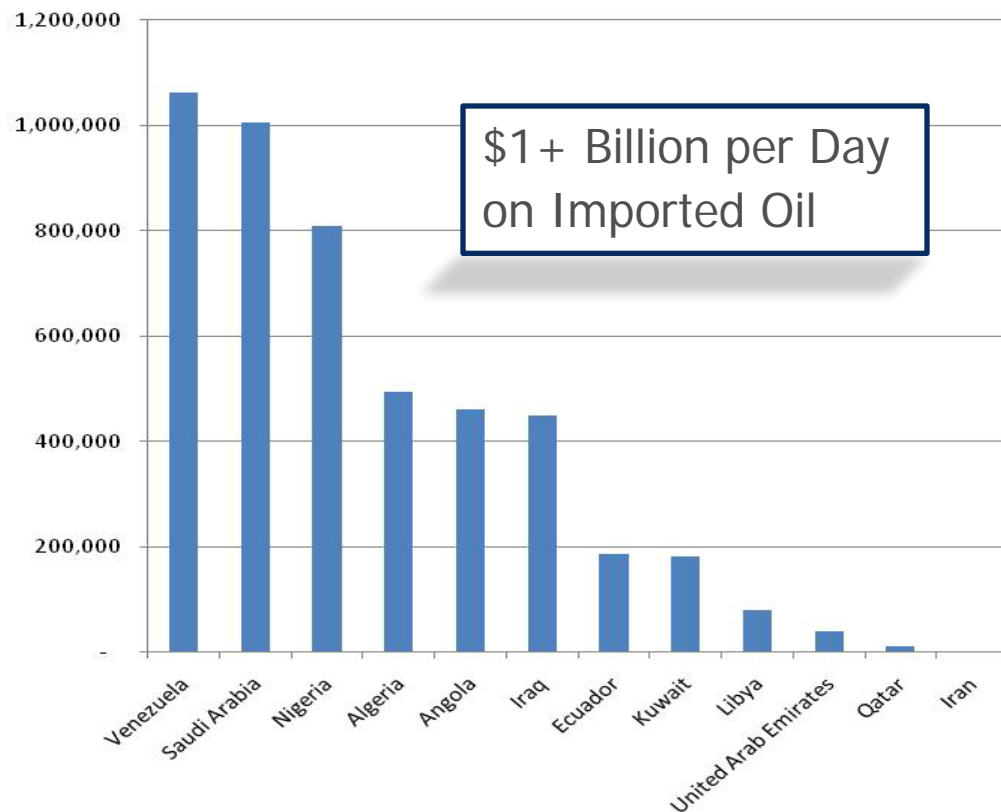


Source: CARB Fuel Pathways Analysis

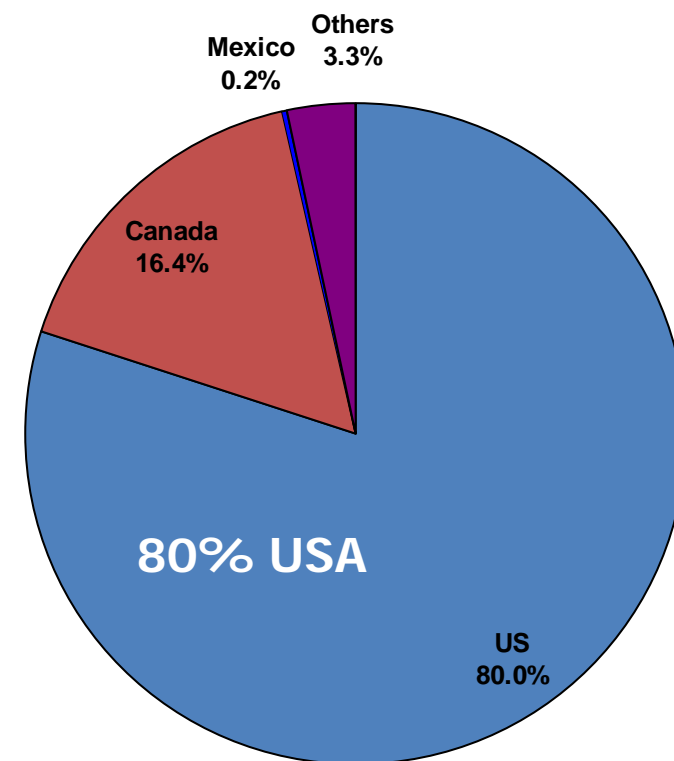
American Energy Security: OPEC Provides 1/3rd of Our Oil

OPEC Imports (Barrels per Day)

US EIA 2009



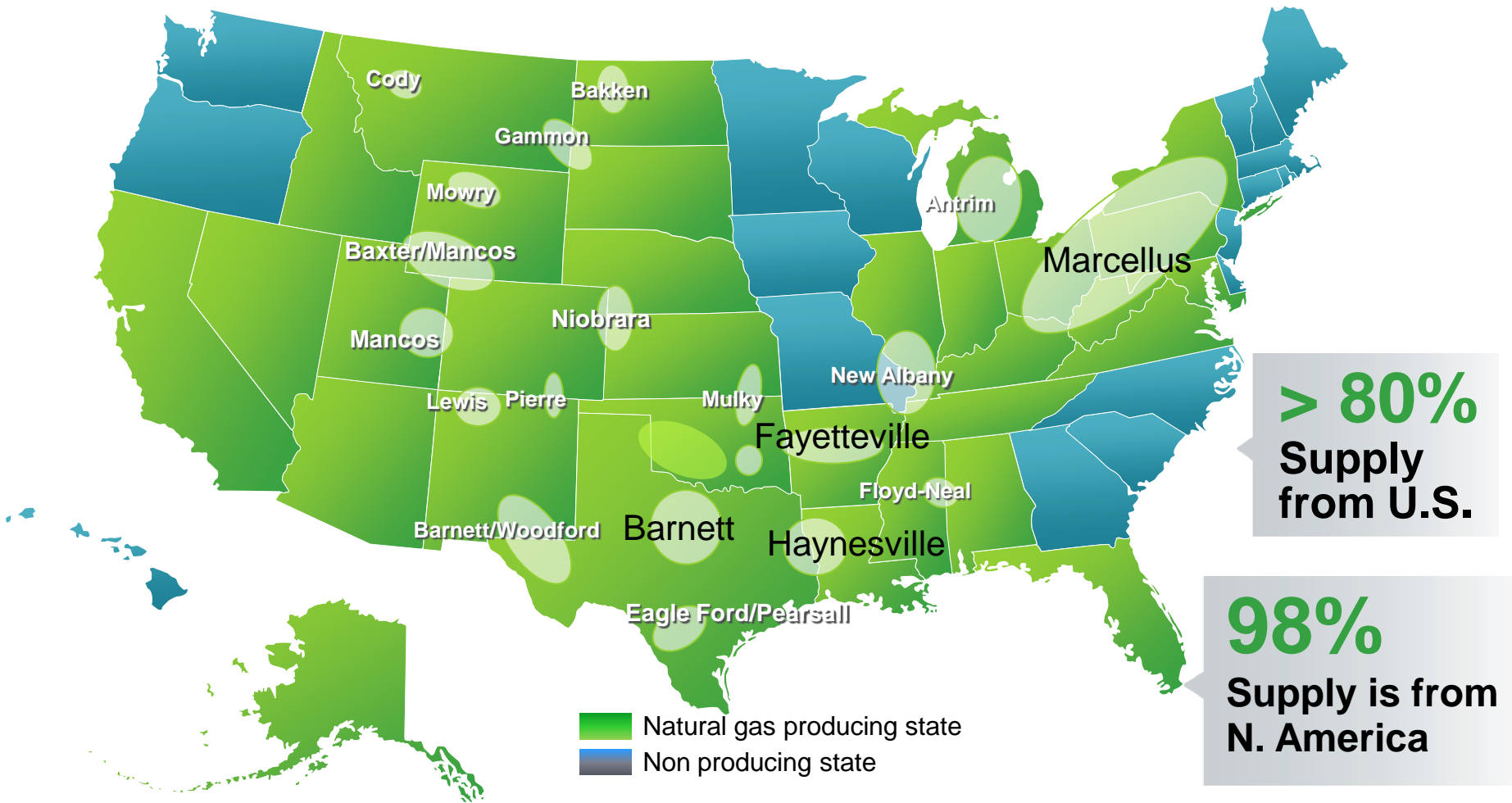
Natural Gas Sources for US Consumption



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

200 Year Supply of Natural Gas

32 of 50 States Produce Natural Gas



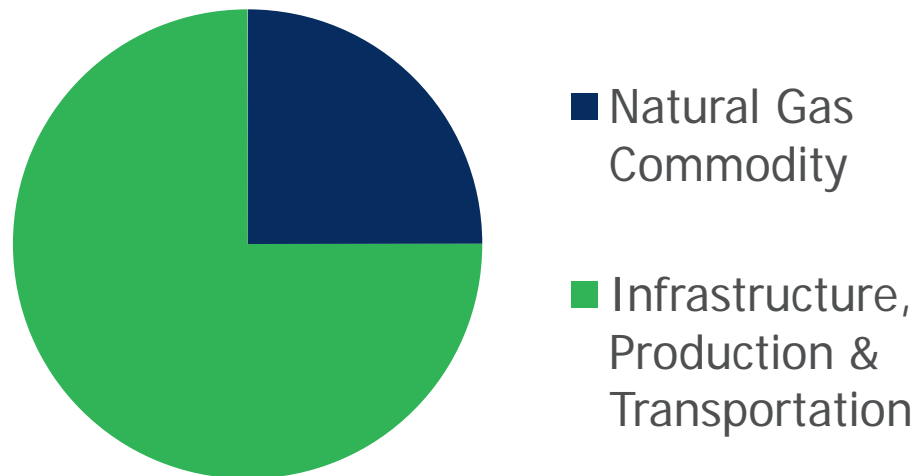
U.S. natural gas deposits are far more widespread and larger than U.S. coal deposits

Economics

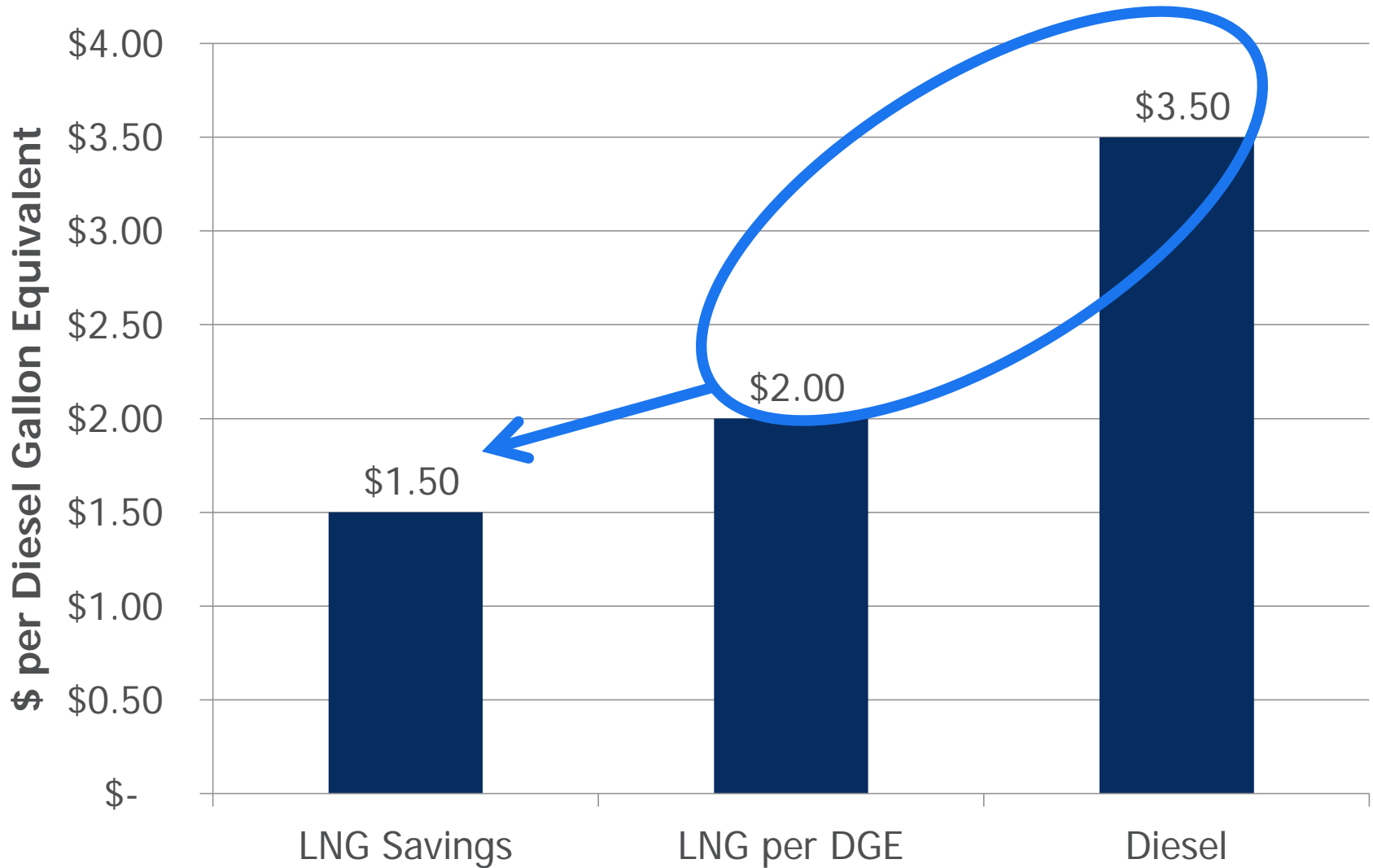
Background Information

- 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 Savings: Greater than \$1.50 per Gallon and Climbing



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**

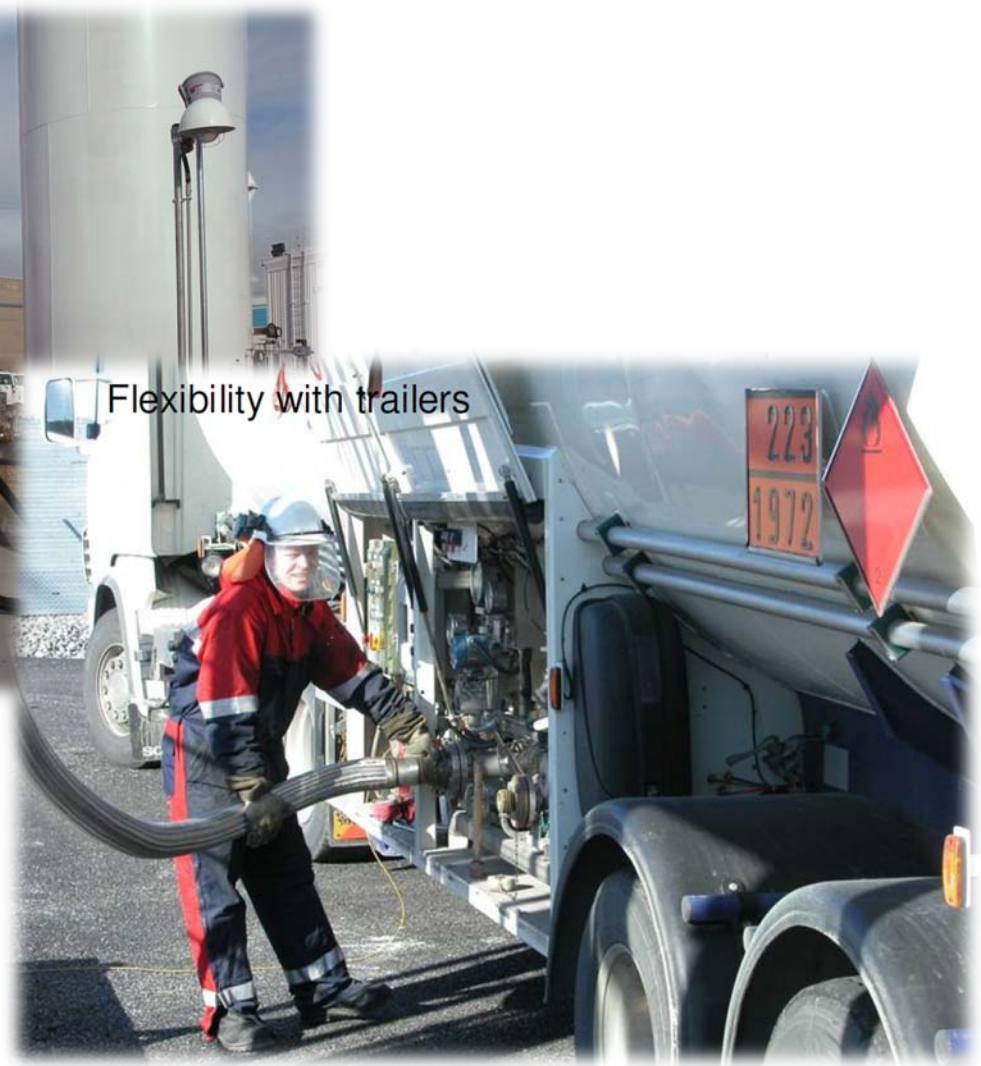
Supply Assurance Plans

- Supply Diversity – Multiple LNG Production Sources
- Resources – 60 LNG Delivery Trailers
- Advance Contingency Planning
- Delivery Trailer Staging



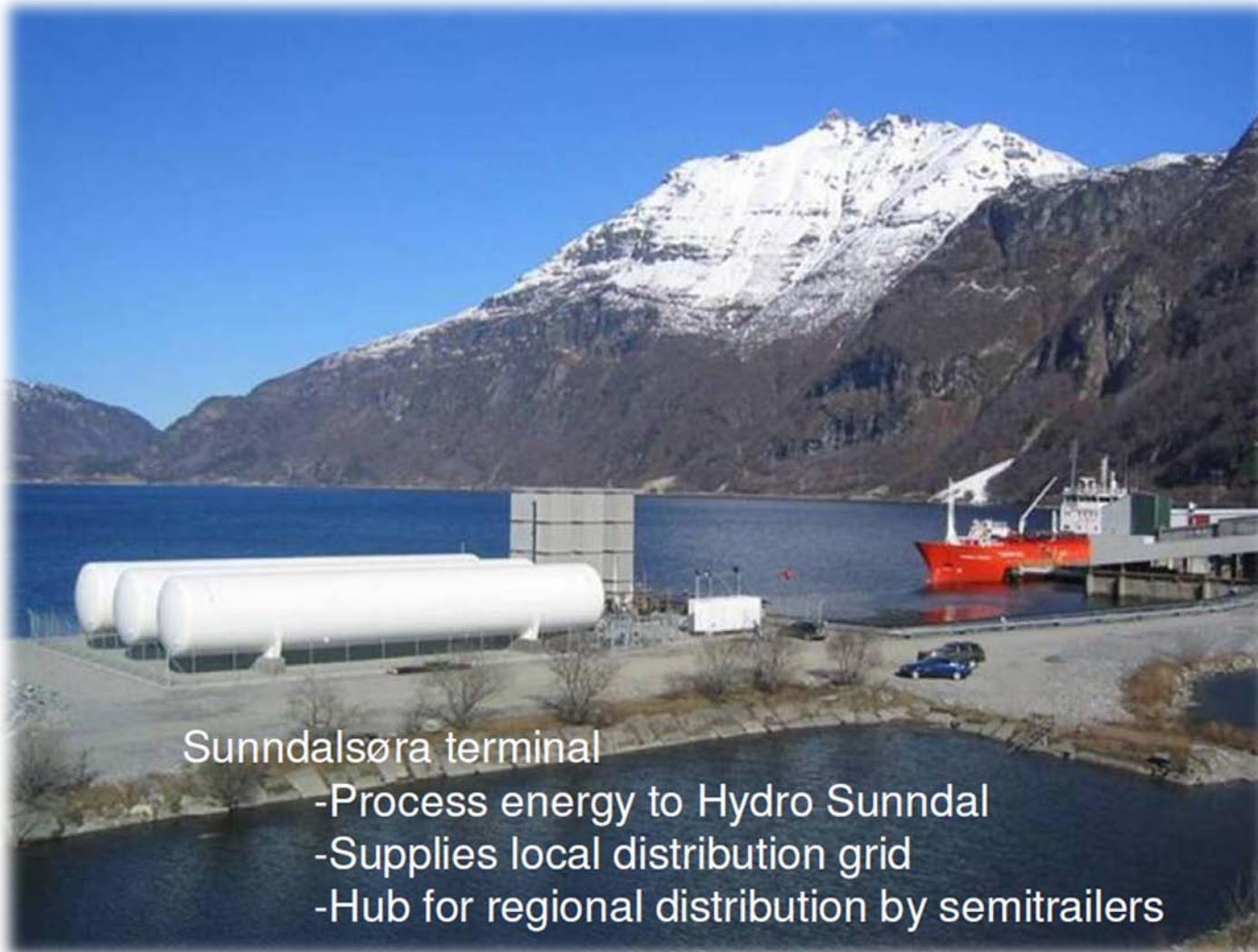
Methods for Fueling Vessels

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 &
Low Carbon***



American

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