

# LNG & High Horsepower Markets AAPA 2013 Facilities Engineering Seminar Vancouver, BC November 2013

cleanenergyfuels.com





- About Clean Energy
- On-Road Trucking with LNG
- High Horsepower Markets/Ports with Eagle LNG Production
  Partners

**Service Vans** 



#### Largest Alternative Transportation Fuel Provider 28,000+400 +700+ Fleet Natural Gas Natural Gas Vehicles Customers **Fueling Stations Renewable Natural Gas (RNG)** Liquefied Natural Gas (LNG) **Compressed Natural Gas (CNG)** 6,000 **Public** Transit **Fleet Vehicles Taxis & Shuttles** 1,500 Trucks 5,000 SuperShuttle Refuse

Hauling

### **Clean Energy & LNG**



- Owns & operates 2 LNG plants
- Developing 2 more LNG plants, potentially 6 more with Eagle LNG
- Fleet of over 80 LNG delivery trailers
- Distribute more LNG for transportation than rest of market combined
- Presence across North America and 26 countries worldwide



- Subsidiaries
  - IMW CNG equipment
  - NorthStar LNG equipment
  - CERF Renewable natural gas
- Partners
  - GE
  - Pilot Flying J
  - Eagle LNG



## Liquid Natural Gas (LNG) Basics

- Energy density & liquid fueling is ideal for high horsepower applications
- Pipeline gas cooled to -260F
- Produced at LNG facility
- Delivered to customers
- No contamination issues all equipment & storage is aboveground











### **Heavy Duty Trucks & Engines Now Available**



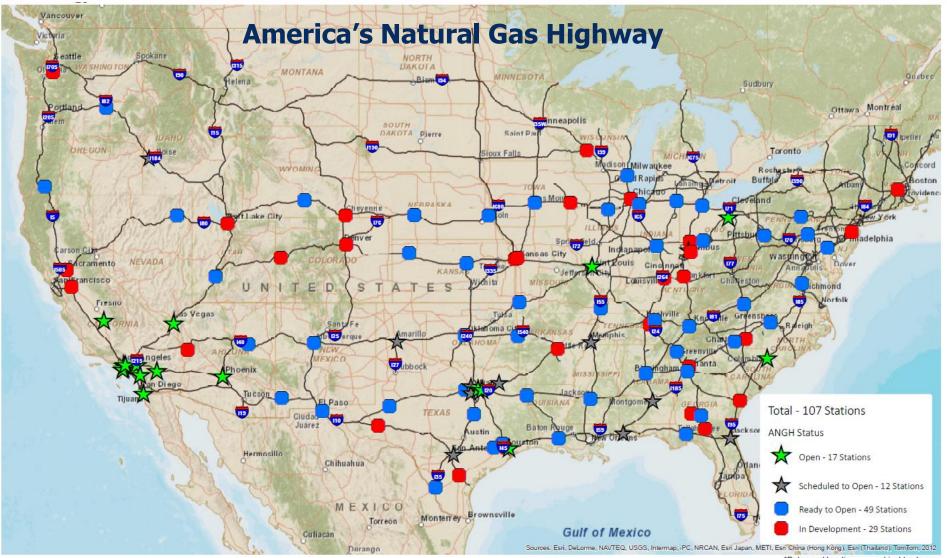
- Spark-ignited 100% natural gas engines
  - Cummins-Westport 9 liter (since 2007)
  - Cummins-Westport 11.9 liter
  - Cummins 15 liter (2015)
- Compression-ignited mix of diesel & natural gas
  - Westport 15 liter (since 2007)
  - Volvo 13 liter (2015)
  - After-market kits
- All major OEM's provide natural gas trucks
  - Freightliner, International, Kenworth, Peterbilt, Mack, Volvo, Autocar, Ottawa, Capacity





#### America's Natural Gas Highway Coast-to-Coast & Border-to-Border Natural Gas Stations





<sup>\*</sup>Dates and locations are subject to change

#### **America's Natural Gas Highway** *Stations in Action*







**Dallas TX** 





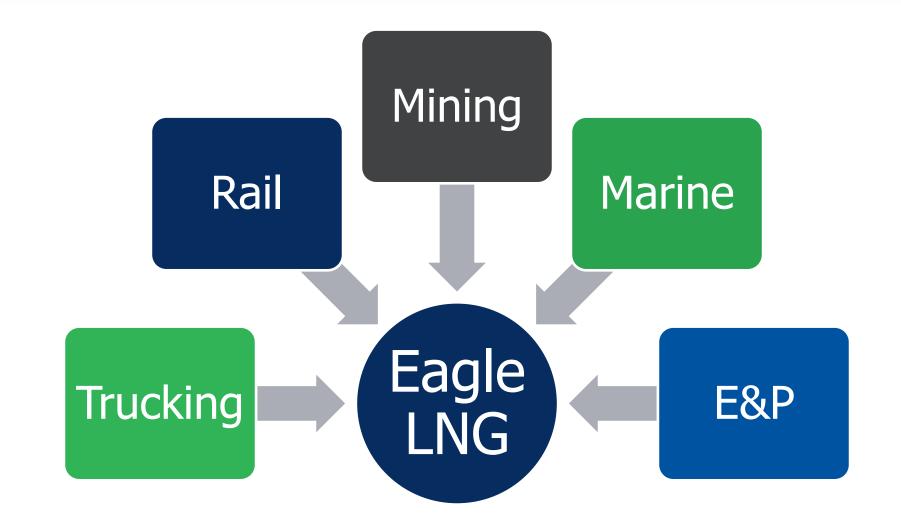
**Baytown TX** 





# **LNG for High Horsepower Markets**





#### **Our Partnership**





- Global Leader: Design, manufacturing of liquefaction equipment
- ✓ Acquired Salof to enhance small-scale LNG offering
  - ✓ Global leader: LNG & CNG turbomachinery O&M
- ✓ "America's Most Admired Company" – Fortune
- ✓ \$240B Market Cap. AA Credit



- ✓ Largest alternative transportation fuel provider
- Operates two LNG production plants & building two more plants
- ✓ Market pioneer & leader in LNG / CNG solutions
  - ✓ 195 Million gallons delivered in 2012

 ✓ Building largest
 footprint of LNG fueling stations "American's
 Natural Gas Highway ™"

# ferus

- Leading provider of cryogenics in difficult to serve areas
- High-growth, integrated service provider specializing in cryogenic production and logistics
  - ✓ Backed by EMG
- Specialized Private Equity firm
  - Natural resources focus
- \$6.2B Investor commitments

## Eagle Is World Class, Small Scale LNG Production Clean Energy

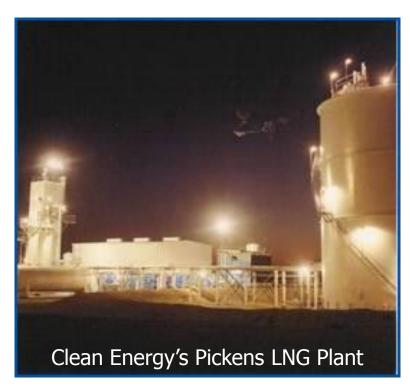
## • Market-Driven Focus on National LNG Supply

- Plant & Equipment
- Design & Build
- 0&M
- Supply Redundancy
- Turnkey Solutions
- Strong Financial Backing



### The Need – Why Eagle?

- High Horsepower Market Is Shifting to LNG Fuel
- LNG Production Needs to be Located Near Consumption for Optimal Logistics & Costs
- Existing LNG Sources Are Inadequate to Meet Market Needs
- LNG Production Is Specialized and Capital Intensive





### **Our Customer Requirements**



#### What we bring...



- Portfolio of multiple redundant supply sources
- Proven history with LNG plants and turnkey services
- Strong financial resources



- Pricing methods tailored to customer's business
- Short and long-term contracts
- Gas purchasing and hedging options

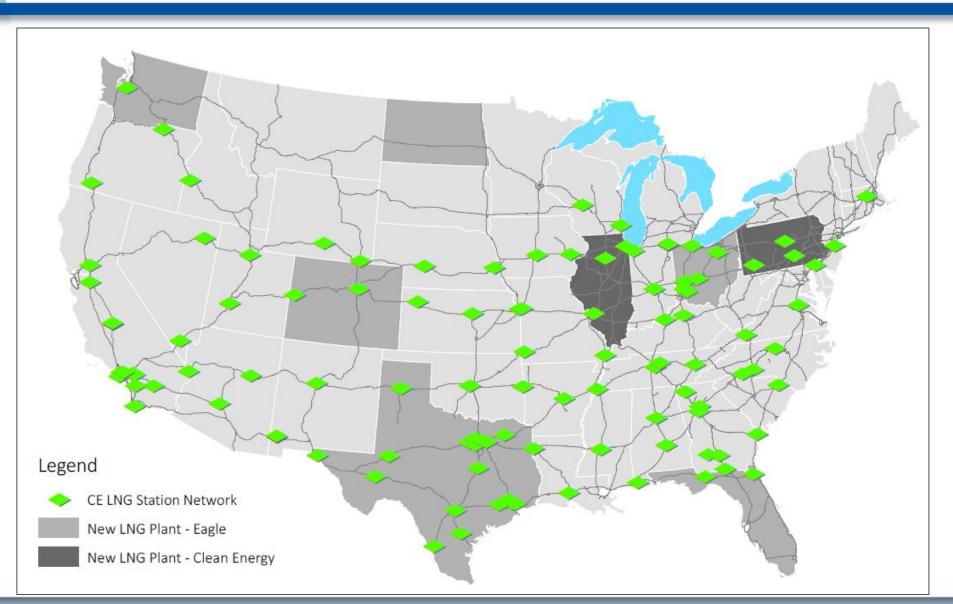




- Largest LNG producer for transportation fuel in the US
- Collectively over 50 years of LNG experience
- More hands-on practical know-how than rest of market
- Turnkey solutions to meet customer needs
- LNG supply contracts to meet commercial requirements
- Solutions for today and tomorrow

#### **Initial Focus on LNG in 6 States**





#### **Case Study** The development of the Boron, CA LNG Plant







- ✓ Greenfield development, construction and startup of LNG plant in California
- ✓ 2 Trains, 180,000 GPD, with 1.8M gallon storage tank
- ✓ Siting, development and permitting fully managed in-house
- ✓ Plant design, selection of EPC contractors and in-house construction management
- ✓ Successful operations since 2008 and plant expansion to 3<sup>rd</sup> train in planning

#### **Case Study** Serving customers with difficult supply logistics

- $\checkmark$  Turnkey service with LNG supply, delivery, storage, and field vaporization
- ✓ First LNG fueled well stimulation
- First Canadian LNG locomotive fueling trian
- Market share of Canadian oilfield cryogenics











#### **First LNG-Powered Tugboat**





### Announcing.... Eagle's Jacksonville LNG Terminal



- St Johns River Site
- 300,000 GPD
- Expand to 900,000 GPD
- 3M Gallons Storage
- Fuel Dock for Bunker Barges & Vessels
- ISO Container & Trailer Loading Rack
- Rail Loading (Future)
- Q4 2015 Operational



# **Open Season for LNG Supply Orders!**

### **Thank You!**



## For more information...

#### GE

- Sanjay Bishnoi, Senior Director, GE Corporate Ventures sanjay.bishnoi@ge.com (713) 951-2316
- John Shepherd, Managing Director, GE Energy Financial Services john.shepherd2@ge.com (713) 951-2301

(403) 517-8777

#### **Clean Energy**

- Greg Roche, VP National Accounts & Infrastructure groche@cleanenergyfuels.com (904) 437-1359
- Brian Powers, VP LNG Production bpowers@cleanenergyfuels.com (949) 437-1190

#### Ferus

Sean Lalani
 seanlalani@ferus.com