



 *KineticEnergy*

October, 2015

Discussion Topics

- Inform audience about LNG and Kinetrex Energy
 - Kinetrex Energy
 - What is LNG
 - The LNG Process
 - Potential LNG usage/Opportunities
 - Case Study
- What do you need to operate LNG



Tony Brown

- Kinetrex Energy
 - ✓ Vice President Marketing & Sales
- Dow Chemical Company
 - ✓ Director of Chemical Turf & Ornamental Business
- Quaker Oats Company
 - ✓ Brand Manager Quaker Chewy Granola
- MBA/Indiana University
- BA/Earlham College

- **Claim To Fame**

Who are we?



Significant Natural Gas Experience

- Citizens Energy Group is a diversified energy and distribution company with multiple lines of business

- Citizens Gas
- Citizens Water
- Citizens Thermal
- Citizens Resources



Thomas Morris, Colonel Eli Lilly and Benjamin Harrison
Citizens Gas Board Members and Founders

- Market leading utility with 125 years of experience

- Approximately \$700M in revenue and over \$3.4B in assets
- Among Midwest leaders in J.D. Power survey
- Citizens is committed to natural gas as a transportation fuel
 - Owned and operated CNG stations since 1986
 - In 2010 established tariff to sell LNG for transportation





The Midwest leading supplier of liquefied natural gas (LNG), helping customers cut fuel budgets and emissions

Top It Off

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Dependable

Two LNG facilities ensure that we have enough LNG to power your fleets and rigs.

A Short Drive

Near four major interstates in Indianapolis, Kinetrex Energy is within a day's drive of 65% of the US population.

Powerful Partnership

We work with you to develop the best fueling options, optimizing budgets and efficiency.



 KinetrexEnergy

Our Partners & End Users



What is LNG



LNG

- LNG, or liquefied natural gas, is natural gas that is cooled to -260° Fahrenheit until it becomes a liquid and then stored at essentially atmospheric pressure. Converting natural gas to LNG, a process that reduces its volume by about 600 times – similar to reducing the volume of a beach ball to the volume of a ping-pong ball – allows it to be transported internationally via cargo ships. Once delivered to its destination in the U.S. or abroad, the LNG is warmed back into its original gaseous state so that it can be used just like existing natural gas supplies.
- When returned to its gaseous state, LNG is used across the residential, commercial and industrial sectors for purposes as diverse as heating and cooling homes, cooking, generating electricity and manufacturing paper, metal, glass and other materials. LNG is also increasingly being used to fuel heavy-duty vehicles

Attributes of LNG

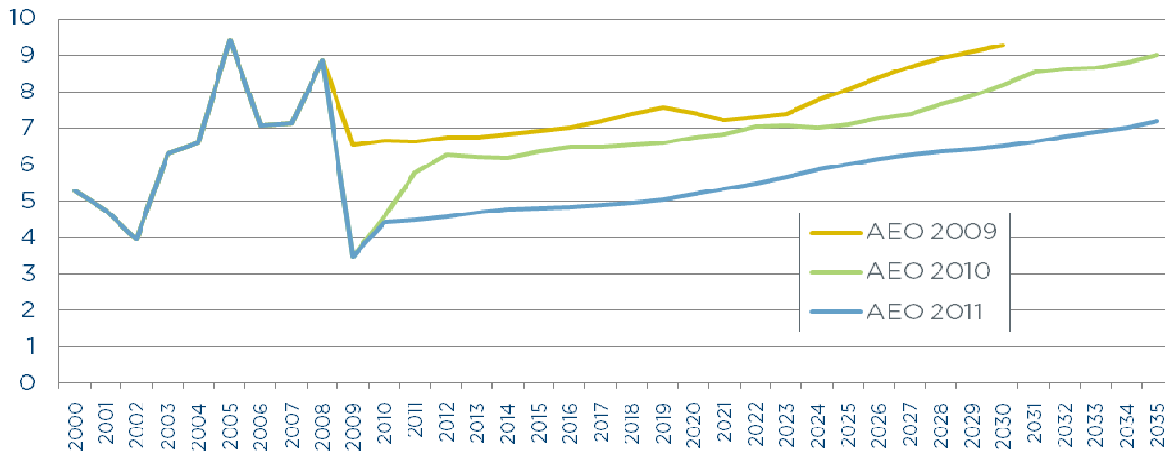
- LNG- Cryogenic to minus -265 degrees. 97% + Pure Methane
- One LNG tanker (10K gallons) holds 830 MCF of working natural gas vs typical CNG tube truck of 150 MCF
- Efficient- One (1) LNG tanker can deliver 100 Mcf/D for 8 days vs SIX (6) CNG tube trailers
- LNG kept at low pressure (5-50 psi) and delivered to customer up to 100 psi.



the safe fuel

Stable Supplies = Stable Prices

Projections for Natural Gas Price Stability (\$ per million BTU)

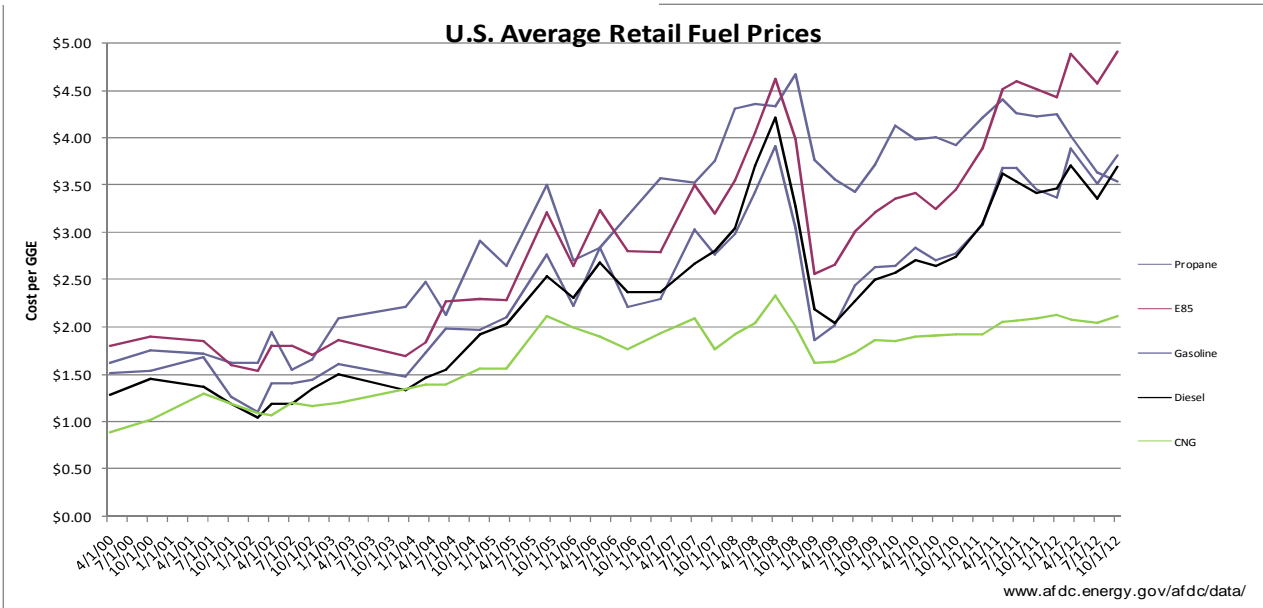


30-50%
lower than
diesel



U.S. Average Retail Fuel Prices

Natural Gas is consistently the lowest price < \$1.00/GGE in 2000 to about \$2.00/GGE in 2012



Source for NG Prices: EIA Annual Energy Outlook 2011
Henry Hub Spot prices (actual prices included for years prior to annual projections)

Source for Fuel Prices: US DOE Alternative Fuels & Advanced Vehicles Data Center

www.afdc.energy.gov/afdc/data/

Environmental Impact of LNG

LNG BY THE NUMBERS

Liquefied Natural Gas is a cleaner, more affordable alternative to diesel — an abundant domestic solution for high fuel costs. Most of our LNG supplies come from the United States, reducing our dependency on foreign oil.



Over the last decade, diesel fuel prices have risen 170%, while gasoline has more than doubled at the pump.

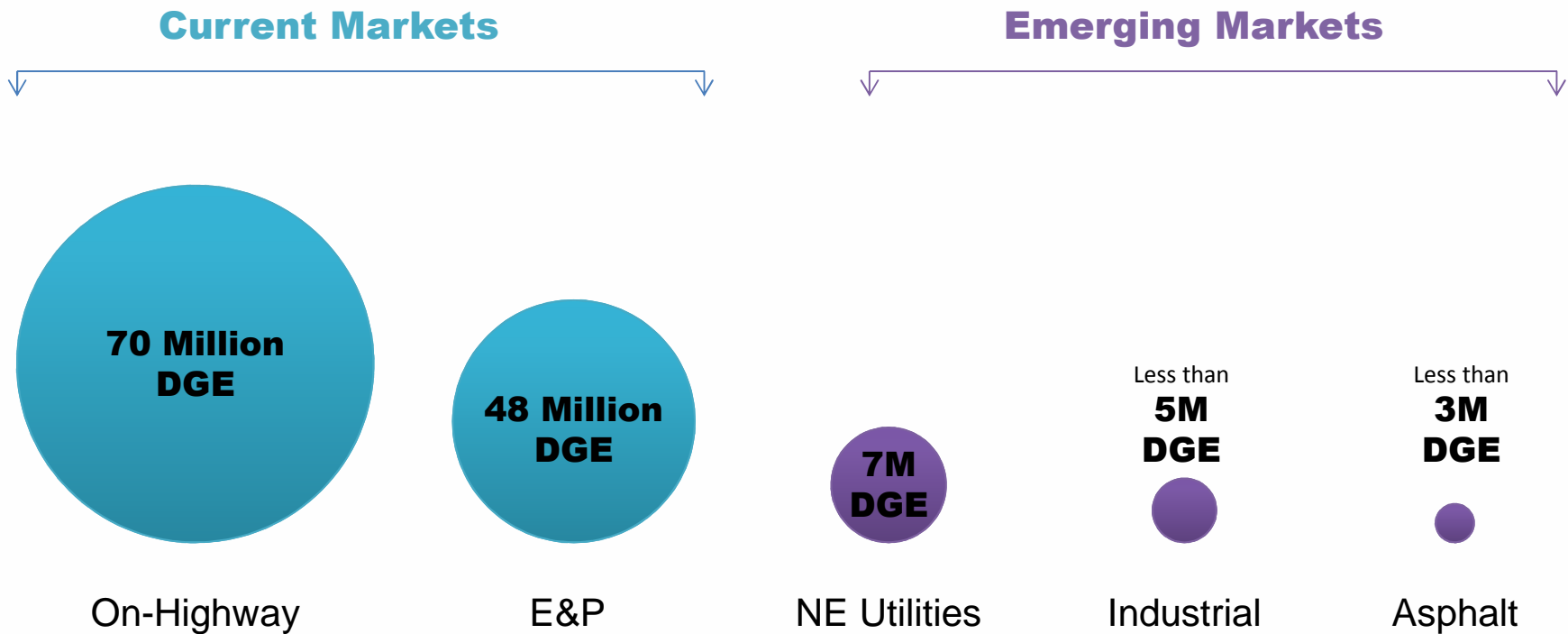


LNG produces 20% less carbon emissions than diesel fuel, meeting the US EPA's Tier 4 emission standards in many applications.



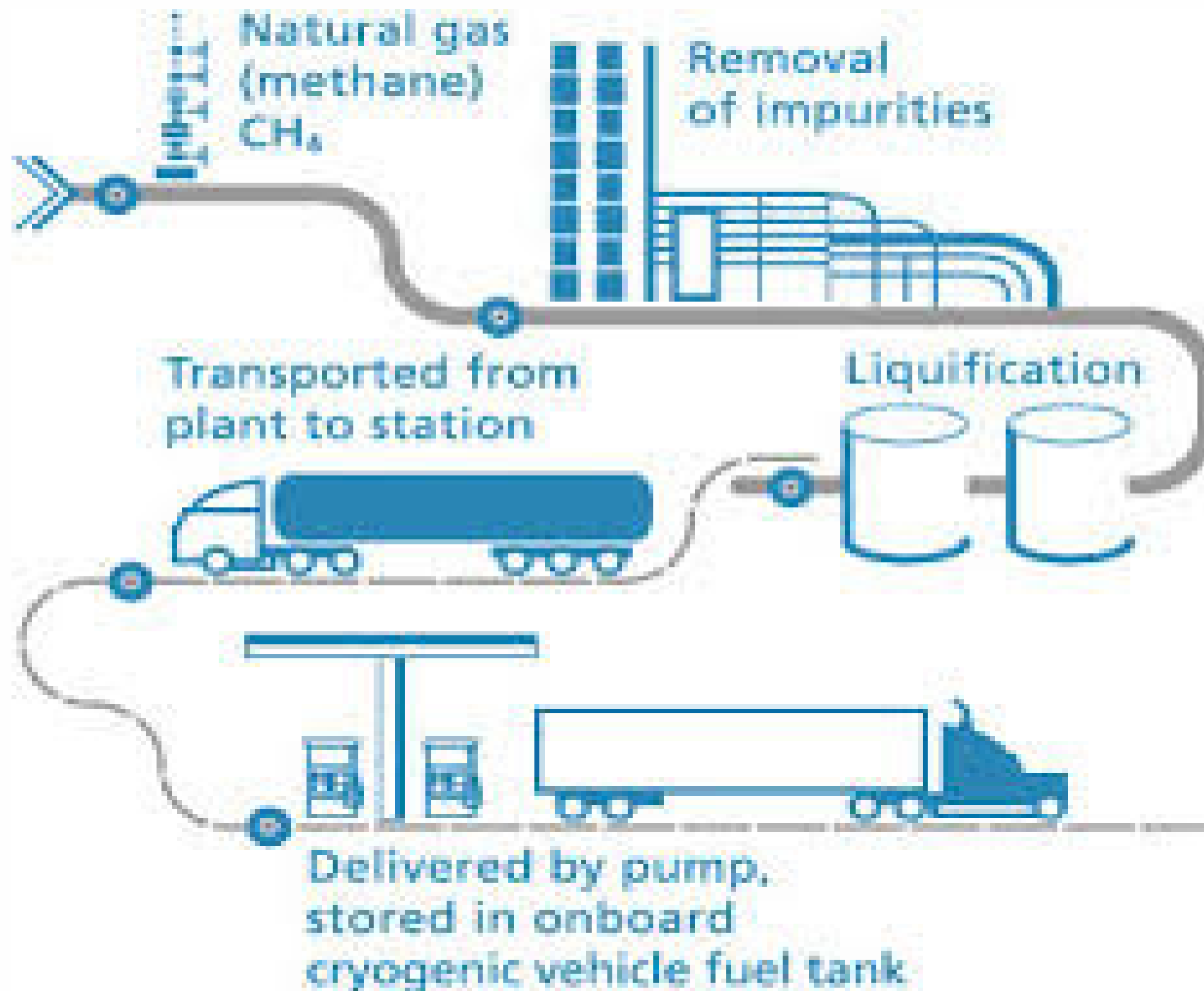
Today, LNG costs 45% less than diesel, offering huge savings potential for trucking fleets and high-horsepower off-highway operations.

LNG Fuel Market Estimates for 2014



- **Other Markets:** Marine markets are likely to develop in the next 3 years and rail may begin converting to LNG in the next 5 years.

LNG Process

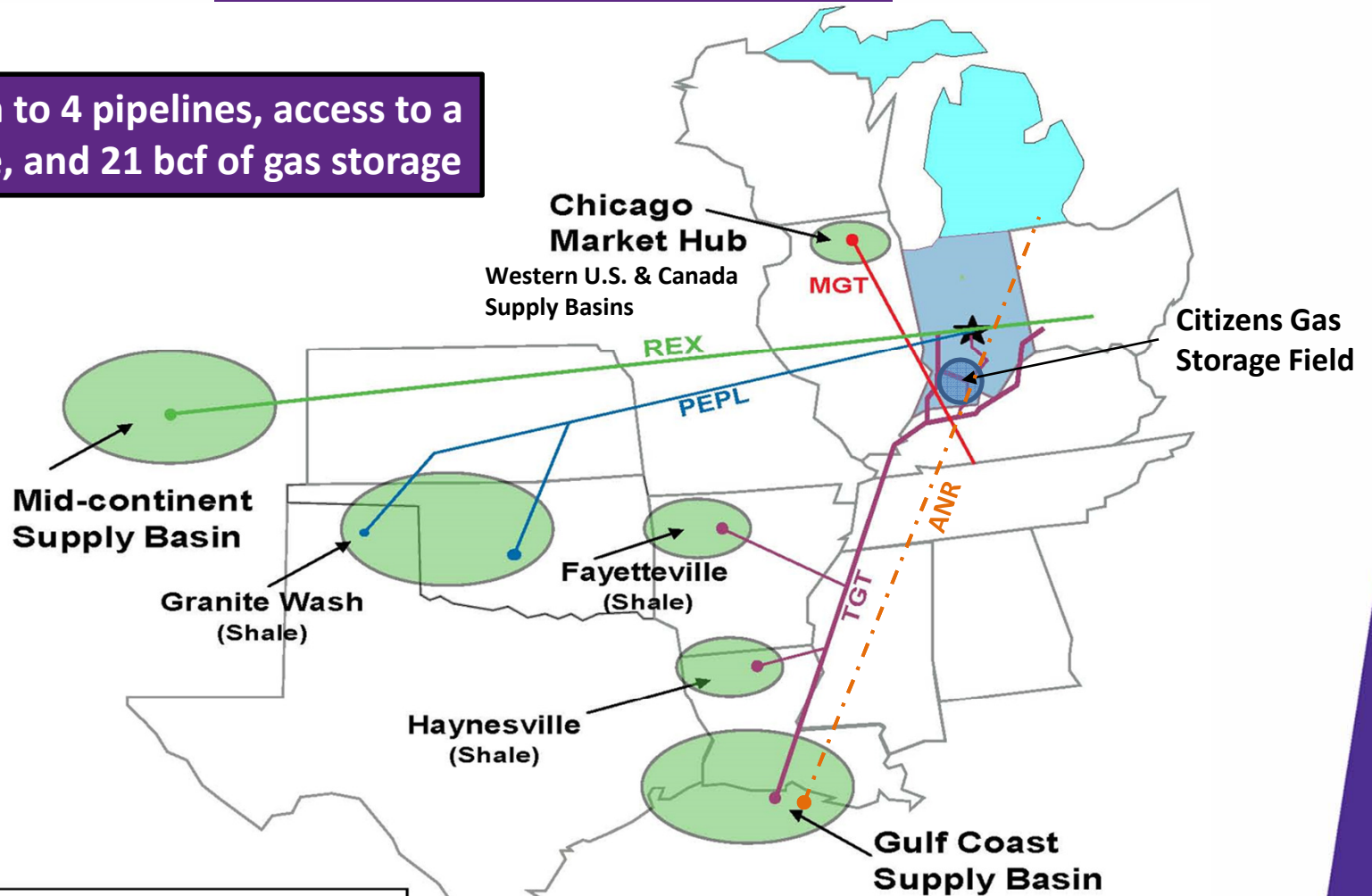


What's important in getting fuel to your facilities



Reliable Partner

Connection to 4 pipelines, access to a 5th pipeline, and 21 bcf of gas storage



- Rockies Express
- Midwest Gas Transmission
- Texas Gas Transmission
- Panhandle Eastern Pipeline

Two Strategically Located Liquefaction Plants

- Tanks provide 24M LNG gallons of storage
- 65% of the U.S. population lives within one day's drive



LNG North

- Excess capacity has been readily available since plants inception
- Typically utility would utilize LNG at peak demand during -17° F average daily temperatures



LNG South



Supply Chain Partners

- Whole Sale LNG Supplier Kinetrex Energy

- Transportation Provider JB Kelley

- Stationary Equipment Supplier Worthington Industries
- Mobile Full Service/Equipment Provider Thigpen Energy

Working together to make the transition to LNG Simple



 *KinetrexEnergy*

 *KinetrexEnergy*

 **THIGPEN**

ENERGY



 KinetrexEnergy



THIGPEN
ENERGY

Texas Gas Association
TGA



 **THIGPEN**
ENERGY

 **SAFETY**
FIRST

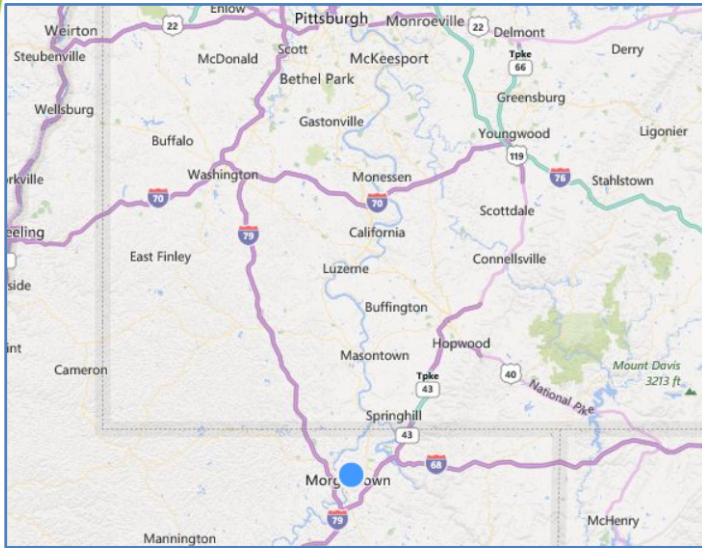
Natural Gas Supply Disruption

 *Winter Curtailment and Supply*

 *Pipeline Safety and Maintenance Ops
aka... “Integrity Projects”*

 *Emergency Situations*

Longview Power Case Study



*Longview Power plant
located approx. 75 miles
south of Pittsburgh, PA*

*Thigpen's virtual LNG
pipeline solution for
Longview Power*



Longview Power Case Study

- ⊠ *Long View Power Generation Morgantown, WV*
- ⊠ *Primary Energy Source-Coal*
- ⊠ *Natural Gas Ignition- Dominion Pipeline Only Source*
- ⊠ *Requires 1,600-1,900 MCFH for 7-10 Hours*
- ⊠ *ISSUE-Both Winter Curtailment and Integrity Ops*

Longview Power Case Study



Longview Power Case Study



Longview Power Case Study



INDUSTRIAL & PIPELINE EXPERIENCE

Markets Served

-  **Pipelines**
-  **Utilities**
-  **Municipalities**
-  **Commercial**
-  **Industrial**



Outages

-  **Pipeline Integrity**
-  **Safety Projects**
-  **Winter Curtailment**
-  **Emergency**



Kinetrex /Thigpen Energy Virtual Pipeline



- Experience includes power plants, shipyards, ports, pipeline and distribution systems
- Safely delivered volumes of vaporized LNG from 5 MCF/Hour to 1,800 + MCF/Hour
- Thigpen has over 50+ years of Natural gas experience



Contact Information



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Back Up





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Steam Plant Needs??

- Storage Facilities
 - Vaporization Equipment
- 

How to size LNG Regas System

Questions for sizing a system

- How many gallons of fuel will be consumed per day? Between
- How many gallons of fuel will be consumed at peak per hour? How many hours per day will system be in use
- What pressure (psi) needs to be maintained within the system?
- Is there any space limitations or restrictions vertically and horizontally?
- Is there any need to move the system?
- Does the gas need to be a certain temperature where fueling occurs?
- How many days per year will system operate below freezing?
- Is electricity available? Voltage, if yes?





KinetrexEnergy.com

A Citizens Energy Group Company