A large, light grey starburst graphic is positioned in the upper right quadrant of the slide. It consists of a central white octagon with eight thick, grey lines radiating outwards at various angles.

**LNG Increases  
Resilience in the Industrial  
and Institutional Environment**

# Agenda

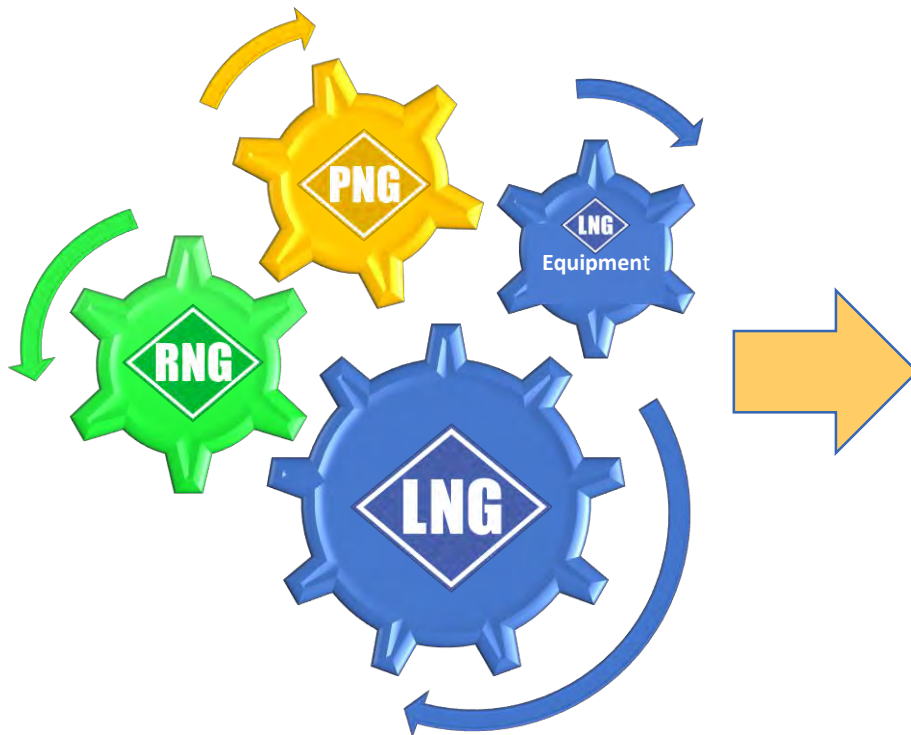
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- Kinetrex Energy Overview
- What is LNG
- LNG Virtual Pipelines

# Kinetrex Energy

We work every day to revolutionize the delivery of energy; to make natural gas America's fuel; and, to lower the cost of business with practical and common sense environmentalism.

## What We Do



## How We Do It

Integrate products for a complete customer driven solution

Drive adoption of disruptive energy technology in the transportation, agriculture, utility and industrial markets

Create a zero emission portfolio by offering Renewable Natural Gas to all transportation customers

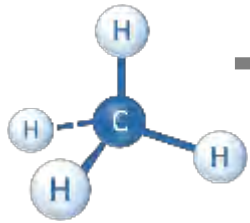
Establish a comprehensive narrative in the public, financial and policy making communities

# What is LNG

# What is LNG

**PRODUCTION**

NATURAL GAS SUPPLY



PRE-TREATMENT



Remove heavy hydrocarbons from natural gas

TURNS TO LIQUID AT -260°F



LNG OCCUPIES 1/600<sup>th</sup> OF IT'S VOLUME AS A GAS



**CONSUMPTION**



CUSTOMER STORAGE AND VAPORIZATION



PLANT VAPORIZATION:  
Vaporize LNG for Indianapolis on the winter's coldest days

# Diverse LNG Applications

Gas Utilities



On Highway



Power Generation



Asphalt Plants



E & P



Agriculture



Marine



Rail



Mining



# LNG is Safe

- Vapors only flammable within concentration of ~5-15% gas in air; emits a very lazy flame
- Natural gas as a liquid will not explode
- If spilled, LNG will evaporate and have no residual impact to the environment
- LNG is colorless, odorless and non corrosive

	LNG	PROPANE	DIESEL
Ignition Temperature (°F)	1004	842	437
Leaks & Spills	Vaporizes to atmosphere	Gathers in low areas	Puddles on ground
Boiling Point (°F)	-260	-44	370+

# LNG offers Reduced Emissions

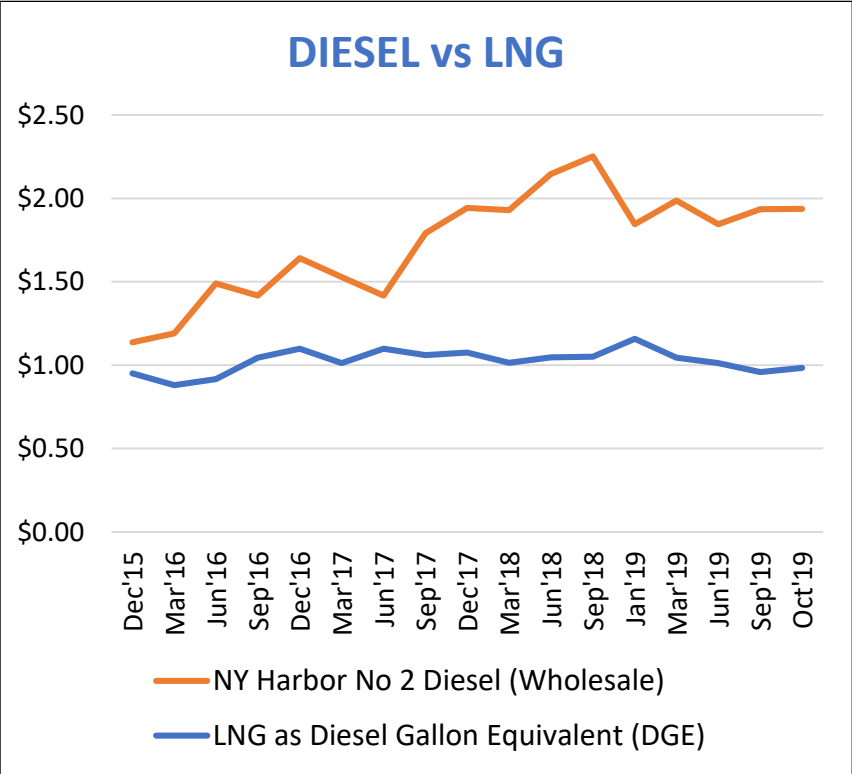
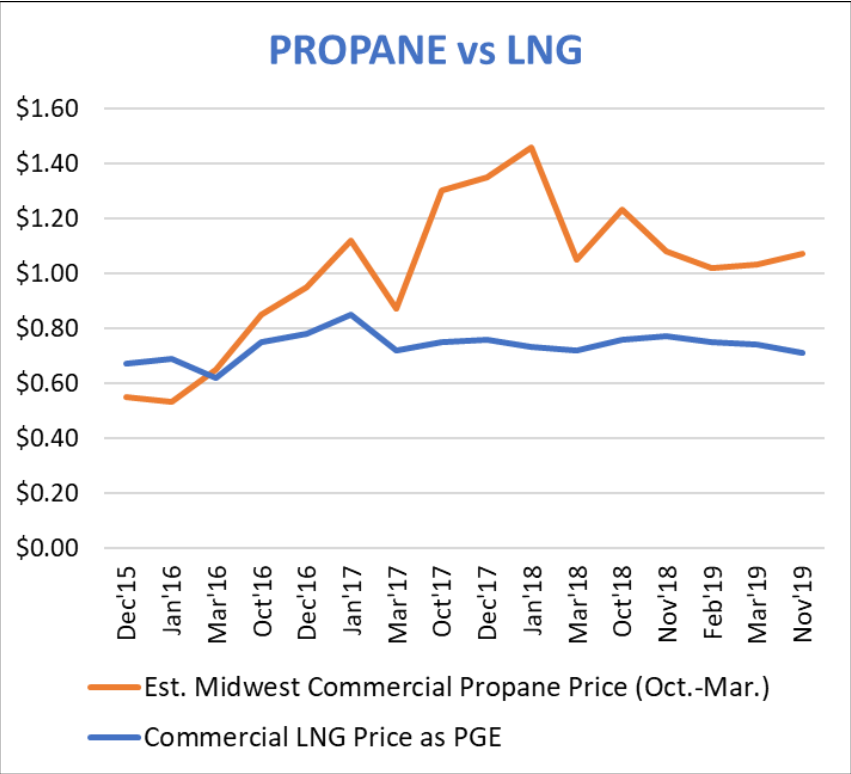
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- LNG consists primarily of methane (95%).
- Natural gas has lower carbon emissions than other fossil fuels.

Lbs. of CO2 Emitted per MMBTU	
Coal (lignite)	215.4
Diesel fuel & heating oil	161.3
Gasoline (w/o ethanol)	157.2
Propane	139.0
Natural gas	117.0



# LNG Provides Price Stability



# LNG Virtual Pipelines

# LNG Virtual Pipelines

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LNG can be a short or long-term way to increase an operation's resiliency.

- **Gas Islands:** LNG can be used to convert rural customers from propane to gas.
- **Seasonal Operations:** Seasonal or temporary LNG equipment is also available to serve as your mobile fuel source without long-term storage fees.
- **Peak Shaving:** The US has the largest gas pipeline network in the world, yet there are still capacity constraints in the interstate gas network, which causes prices to skyrocket, sometimes even limiting supply for the C&I operation.

# LNG Virtual Pipelines

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LNG can be a short or long-term way to increase an operation's resiliency.

- **Backup Fuel Supply:** On-system storage limits risk from pipeline force majeure.
- **Power Generation:** RTOs are beginning to impose strict penalties on power generators that do not supply electricity when required.
- **Periods of Pipeline Integrity Projects:** LNG can bridge or eliminate system upgrades. Immediate deliverability of LNG assists with system low pressure areas in peak demand times and creates alternatives to expensive distribution system upgrades particularly with high growth utilities. Creates a temporary source of supply for pipeline integrity projects so customer gas keeps flowing.

# Permanent LNG Systems

LNG can be a primary fuel wherever there is not adequate natural gas infrastructure.



# Mobile LNG Systems

LNG can be a short or long-term solution utilizing a mobile LNG system.



## Storage

ISO container or Cryogenic 338 trailer



## Vaporization

Trailer-mounted single forced air vaporizer, or dual forced air ambient vaporization

# Gen2 Virtual Pipeline System - Video





 *Kinetrex*Energy

