

# Utilities 101: Fueling Industry with Natural Gas and More

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While you wait...

## **ZOOM Logistics:**

- All attendees are muted.
- At the bottom of your screen, choose “speaker view” as your viewing option.
- There will be a Q&A session following the presentation.

## **HOW to ask questions?**

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- The moderator will read your question aloud.



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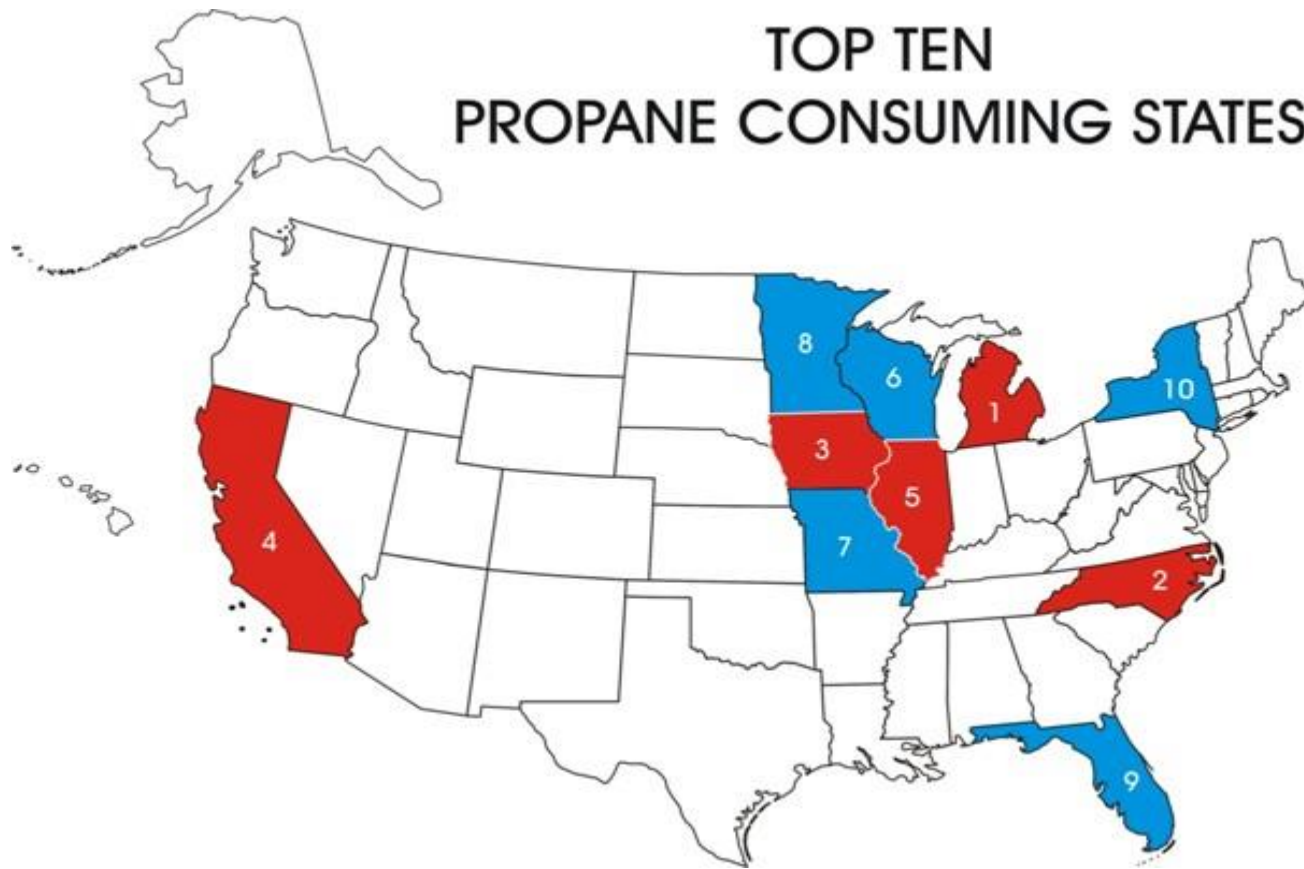
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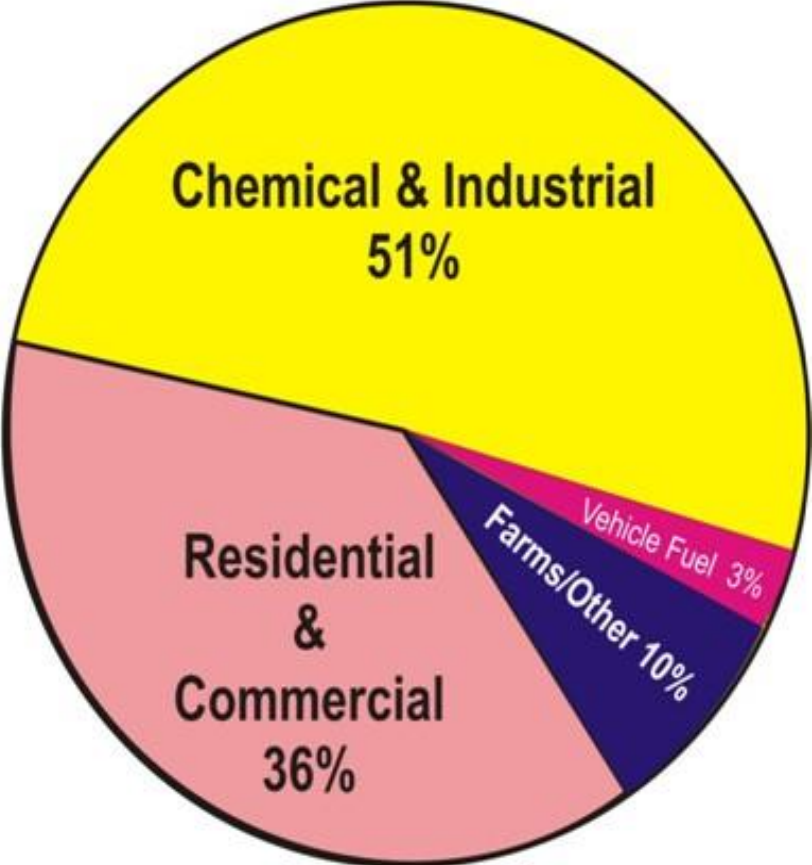


# TOP TEN PROPANE CONSUMING STATES

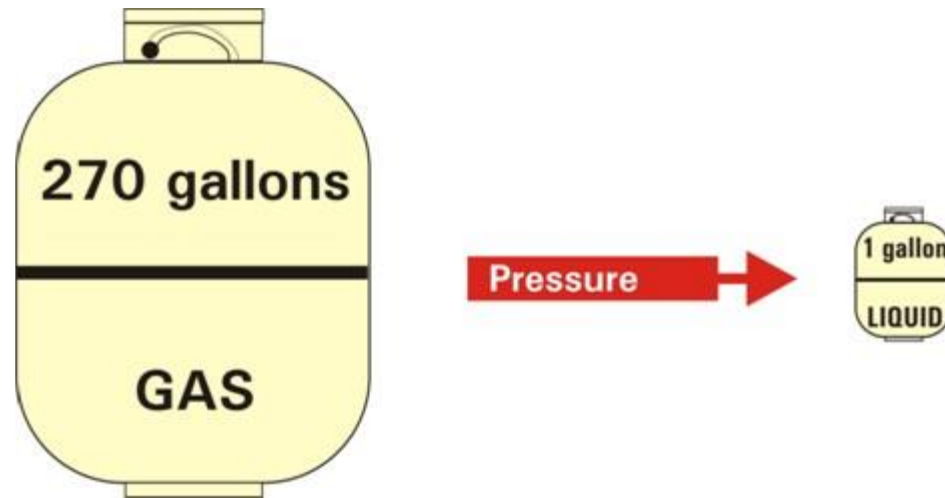




# PROPANE CONSUMPTION

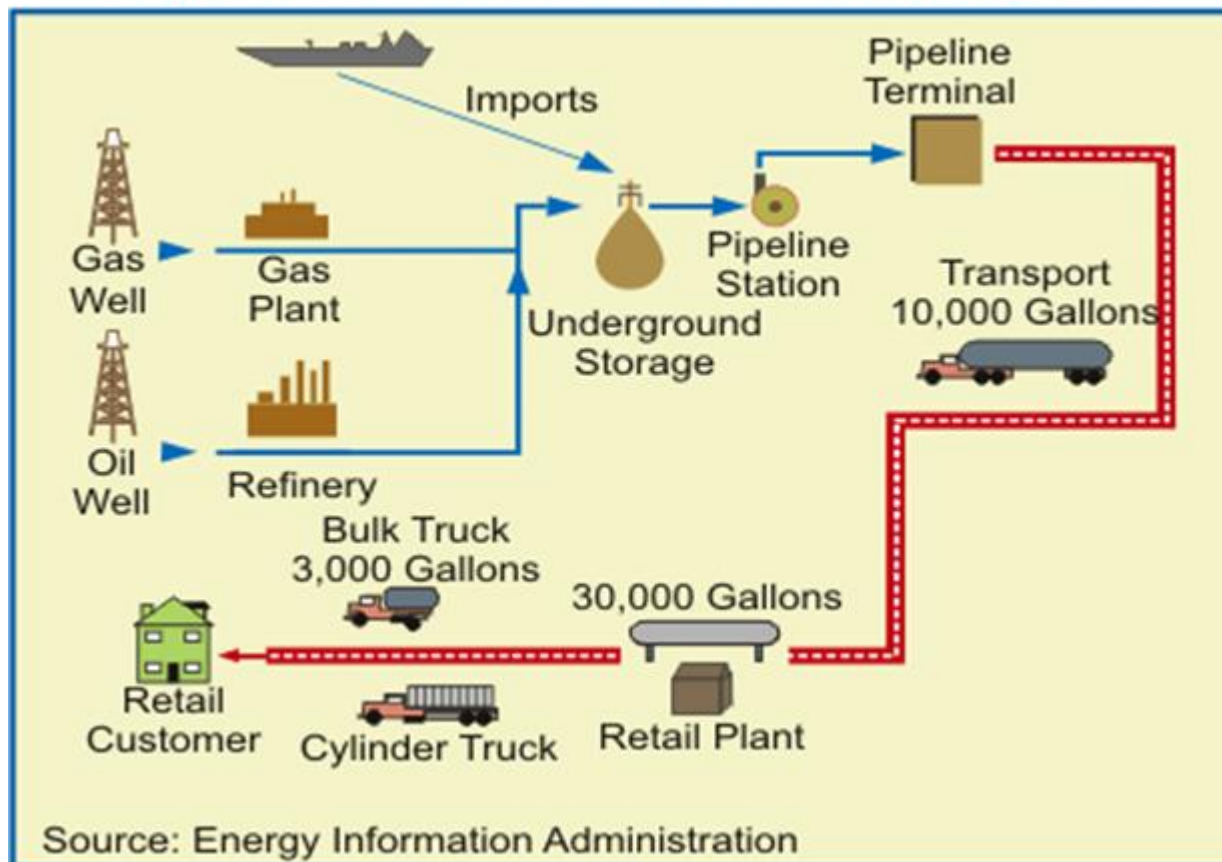


Propane naturally occurs as a gas



However, at higher pressure or lower temperatures, it becomes a liquid

## Propane Production and Distribution System



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What a Gas Utility Needs to Know

# Thermal Value Comparisons

COMPARATIVE THERMAL VALUES	1.00 million Btu	24.0 million Btu	0.0916 million Btu	0.125 million Btu	0.139 million Btu	0.150 million Btu	0.003412 million Btu
Natural Gas 1000 Btu/cu ft	1.000 cu ft	24,000 cu ft	91.600 cu ft	125.000 cu ft	139.000 cu ft	150.000 cu ft	3.412 cu ft
Coal 12,000 Btu/lb	83.333 lb	2,000 lb	7.633 lb	10.417 lb	11.583 lb	12.500 lb	0.2843 lb
Propane 91,600 Btu/gal	10.917 gal	262.009 gal	1 gal	1.365 gal	1.517 gal	1.638 gal	0.0373 gal
Gasoline 125,000 Btu/gal	8.000 gal	192.00 gal	0.733 gal	1 gal	1.112 gal	1.200 gal	0.0273 gal
Fuel Oil #2 139,000 Btu/gal	7.194 gal	172.662 gal	0.659 gal	0.899 gal	1 gal	1.079 gal	0.0245 gal
Fuel Oil #6 150,000 Btu/gal	6.666 gal	160.000 gal	0.611 gal	0.833 gal	0.927 gal	1 gal	0.0227 gal
Electricity 3412 Btu/kWh	293.083 kWh	7,033.998 kWh	26.846 kWh	36.635 kWh	40.739 kWh	43.962 kWh	1 kWh

Energy Conversion Factors
C = 100 M = 1,000 MM=1,000,000
1cf (cu. ft. natural gas) = approx 1,000 Btu
1 therm = 100,000 Btu
10 therms = 1 DT(dekatherm) = 1,000,000 Btu
100 cf = 1 Ccf = 1 therm = 100,000 Btu
1,000 cf = 1 Mcf = 1 DT = 1,000,000 Btu = 1 MMBtu
1 cm (cu. meter) = 35.3 cf
1 Btu = 252.16 calories = 1055 joules





# Natural Gas Flow Rate

- Maximum Peak Hourly Flow – CFH, MMBTU, CM/Hr, ...
- Average Hourly Flow Rate – Steady State Operating Flow



# Natural Gas Outlet Meter Pressure

- Pressure from the outlet of the meter to provide proper equipment operation
- Standard Pressures offered are
  - 7-inch water column
  - 2 PSIG
  - 5 PSIG
  - Greater Pressures require engineering analysis and approval



# Natural Gas Pipeline Pressure

Average Operating Pressure in the Pipeline System

Pressure varies depending on weather and other conditions

Standard Distribution Pipeline Pressure is 55 PSI and most of these lines are plastic

High Pressure Pipeline System Operating Pressures will vary and normally be a minimum of 150 PSI at DENC.

# Natural Gas Usage

Estimated Average  
Monthly Usage

Estimated Annual  
Usage

# Frequently Asked Questions

- How long will it take to provide service?
  - Depends on the size and complexity of the design and the permits needed.
- What is the capacity of the pipeline?
  - Capacity varies depending on weather and other factors. Our answer will be more general( more than adequate for the load...)
- Will there be any cost to provide service?
  - In some cases we can give a qualified answer that is subject to a service agreement with the customer.

# Questions?

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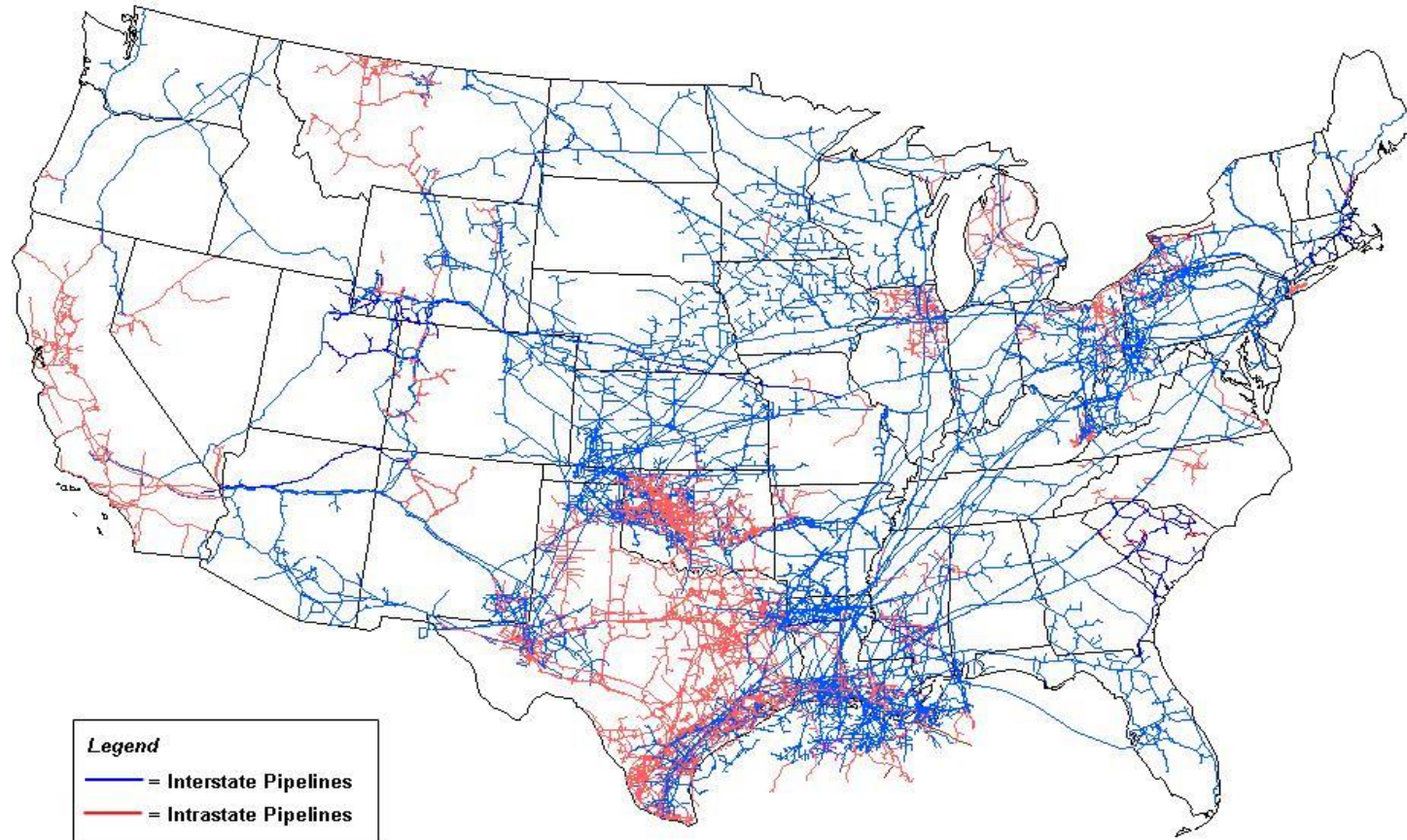
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# US Pipeline Grid

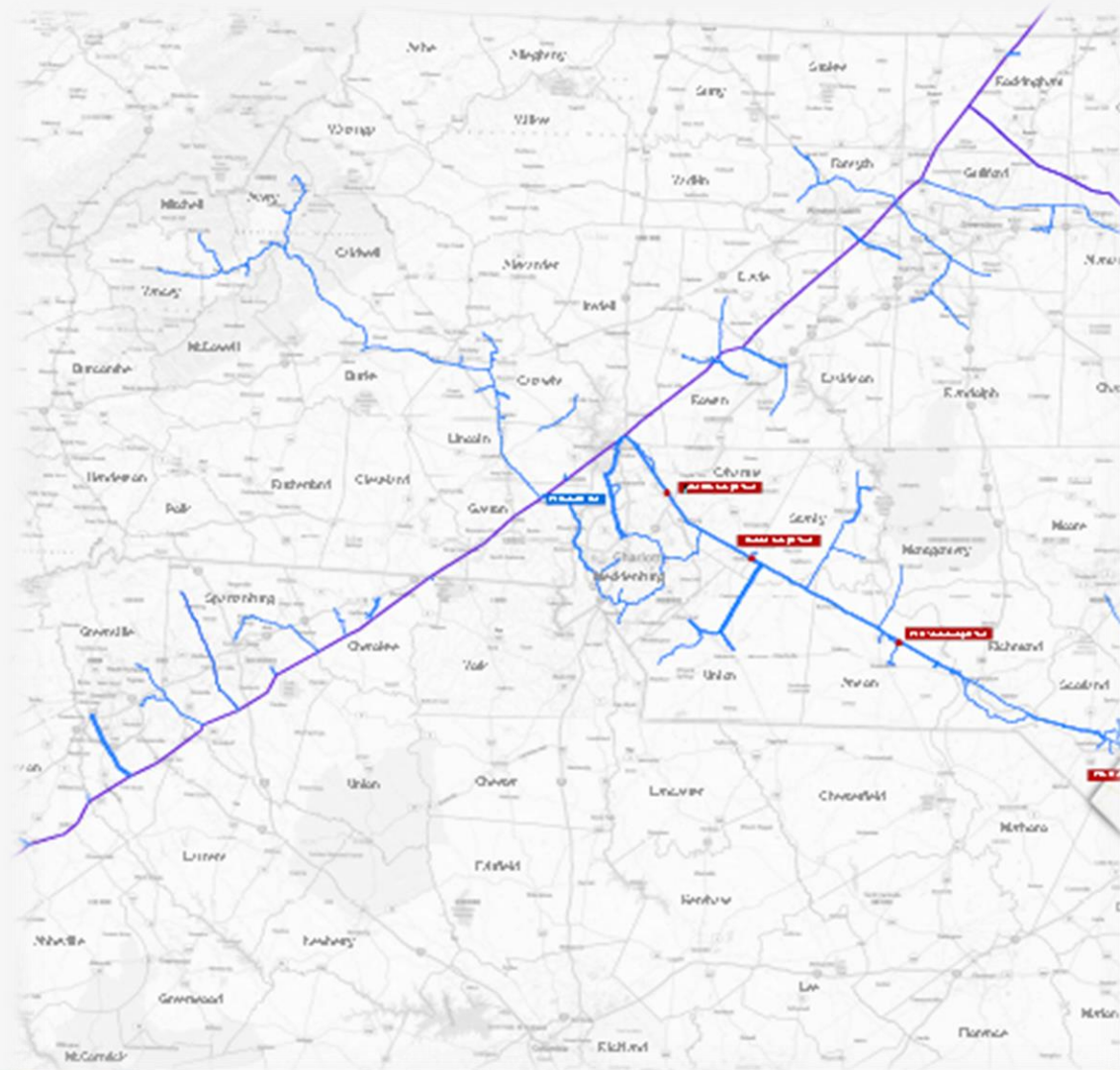


Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System





# Transco Interstate Pipeline



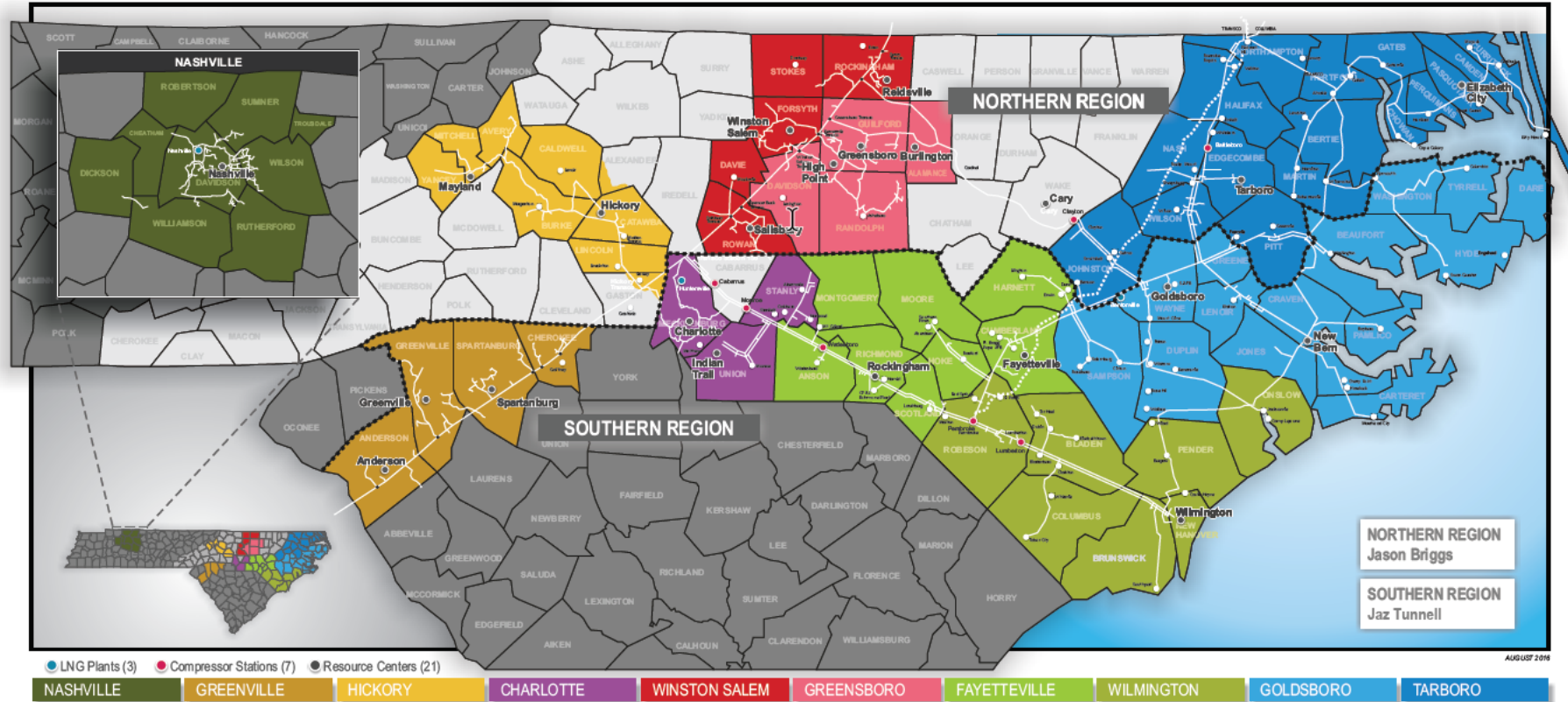


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# Key Reminders When Inquiring About Gas Availability

- A gas line located near a particular site does not necessarily mean that service is readily available without additional infrastructure or investment. The line may or may not have the available capacity necessary.
- The absence of a natural gas line does not necessarily mean that Piedmont is unable to serve that site. We can always confidentially explore options with prospects to expand infrastructure to the site

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# Comfortable, Affordable, Reliable, Efficient



- Many natural gas appliances, and some industrial equipment, will continue to operate without electricity
- Natural gas equipment generally lasts longer
- Distribution systems, being mostly underground, are extremely reliable, efficient and protected

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