

Propane Supply and Logistics Overview

**Pennsylvania Public Utility Commission
Winter Reliability Assessment Meeting**

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U.S. Propane Supply

- **Domestic propane supplies are sourced from:**
 - 50% Natural Gas Processing
 - 50% Crude Oil Refining
- **10-15% of U.S. supply is Imported from:**
 - Canada by rail or pipeline
 - Waterborne Import Terminals
- **Price Basis Locations:**

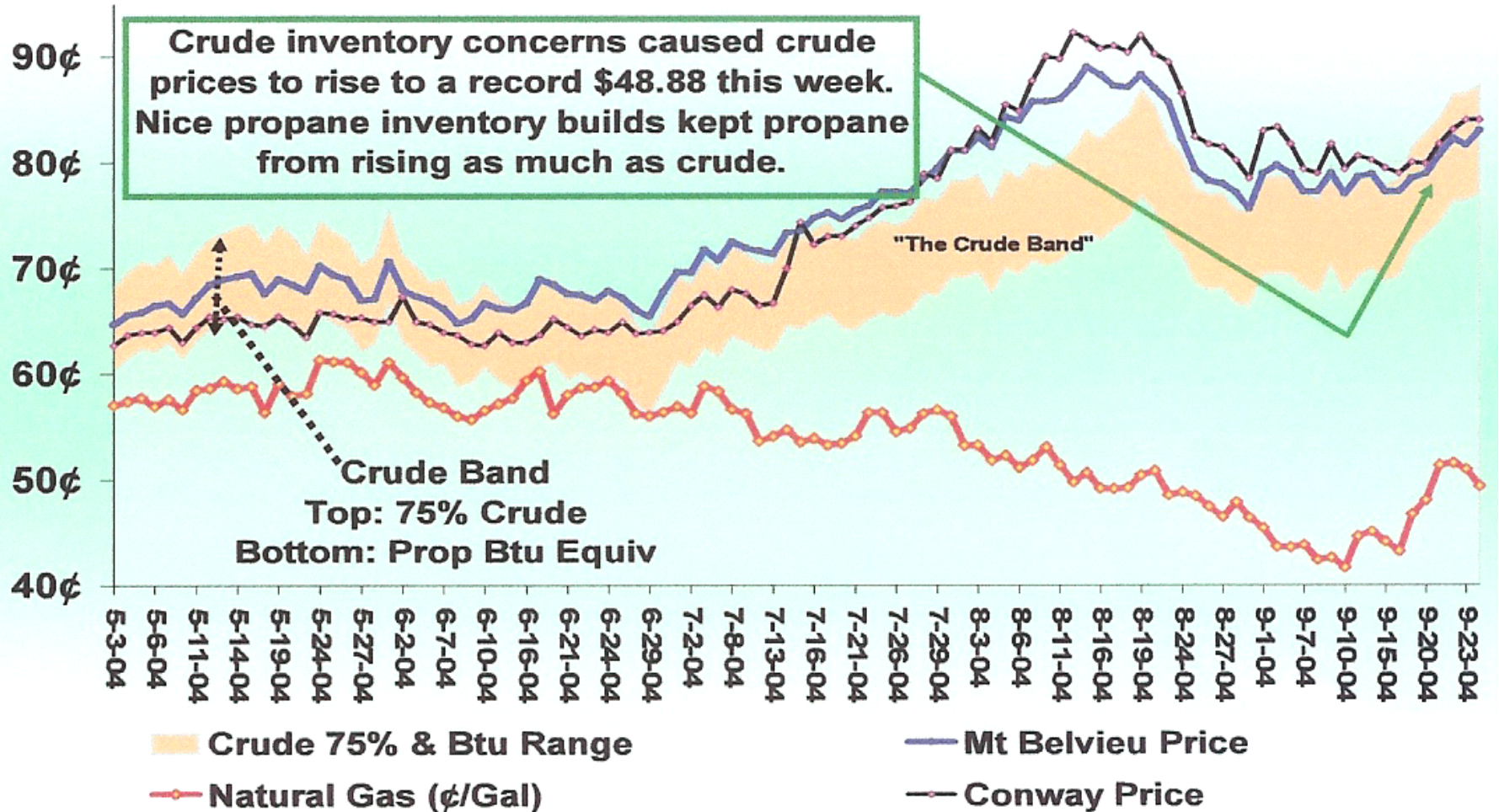
Mount Belvieu, Texas	(Gulf Coast)
Conway, Kansas	(Mid-Continent)
- **Pricing will follow crude values (roughly 75%) during spring and summer and follow demand fundamentals during the peak season**

Propane Value Relationship to Crude and NG

Daily Prices - May 2004 Forward

Crude and Natural Gas Converted to Propane Equivalent Btus

Prices Based on Closing Values



U. S. Propane Demand

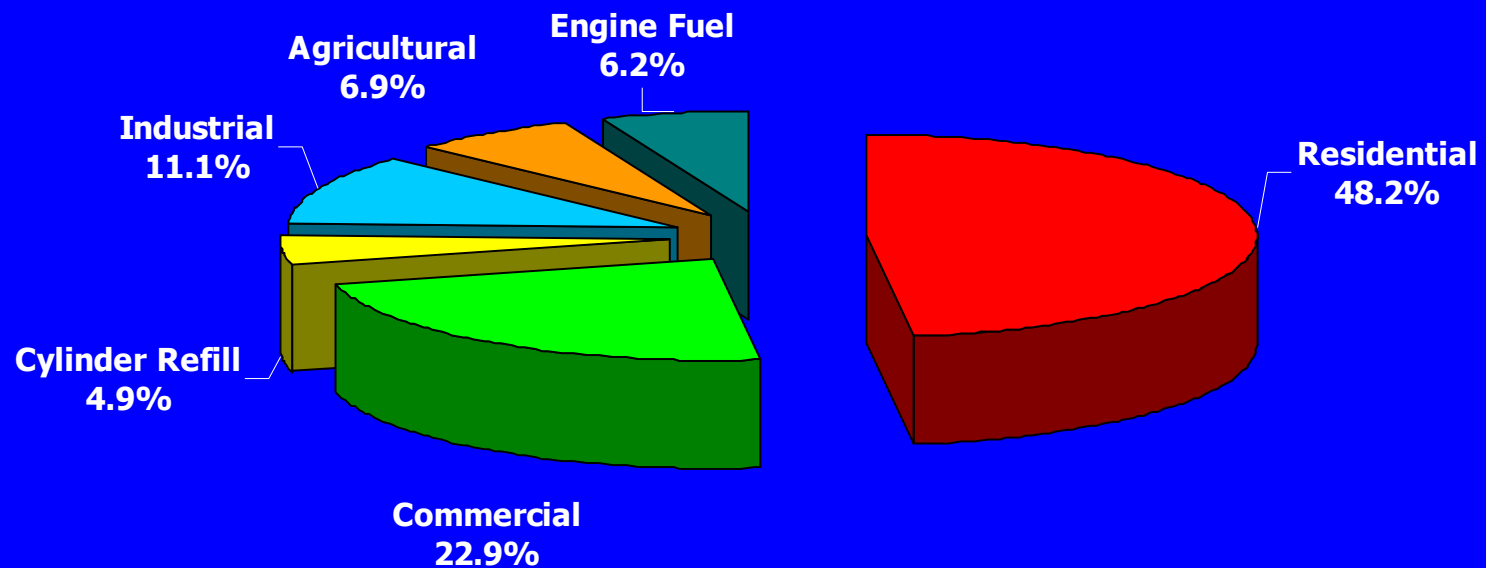
Petrochemical Feedstock

- Building blocks for plastics, fibers, and chemicals

Retail Market (Highly Seasonal)

- Residential Customers
- Commercial space heating
- Industrial space heating and processes
- Agricultural crop drying
- Engine fuel (folk lifts)
- Grill Cylinders

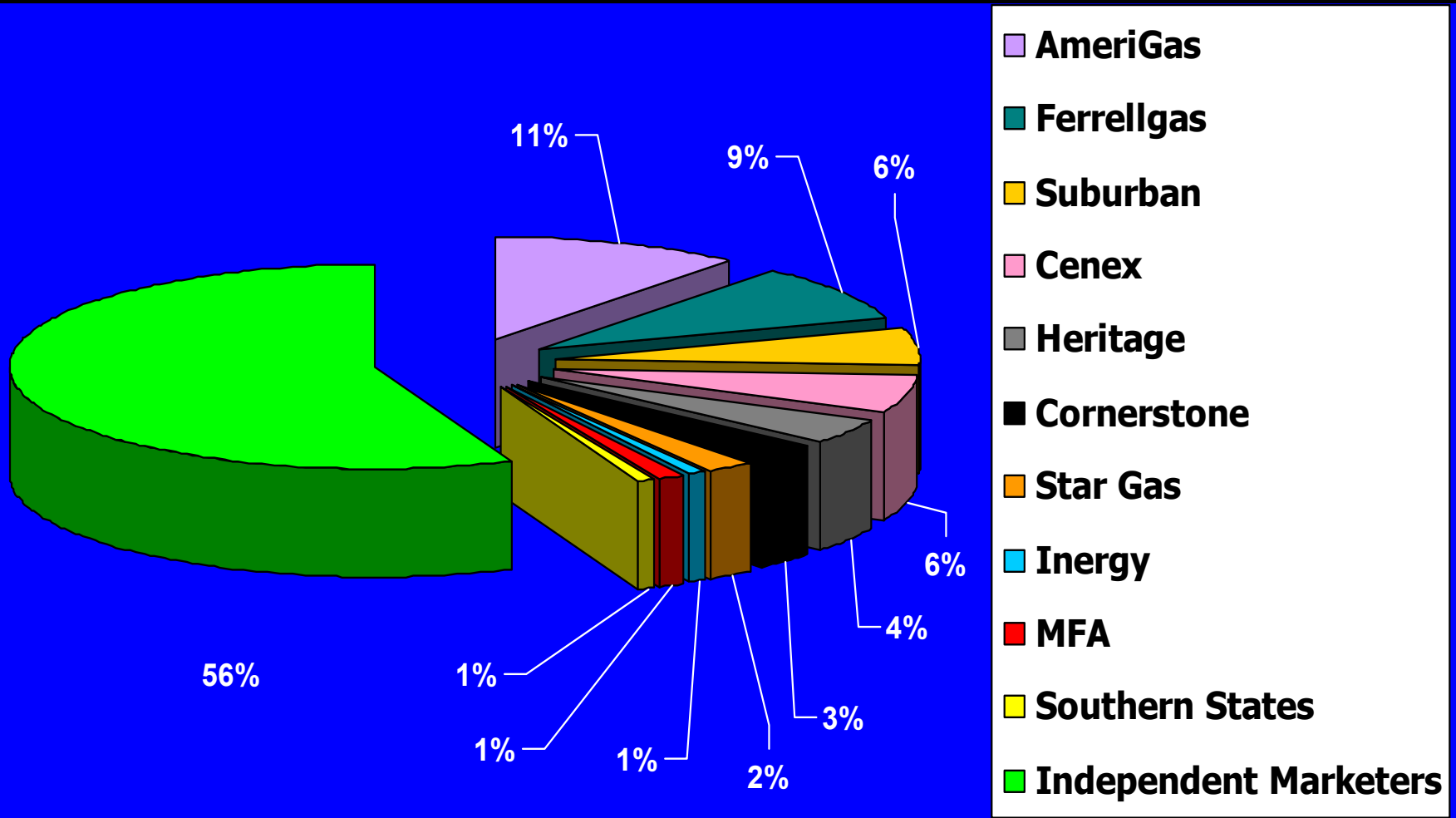
Retail Market End Users



Retail Marketers

- Fragmented Market with 4,000+ Companies in the U.S.
 - Large Multi-State Marketers
 - Regional Independents
 - Small “Mom & Pop” companies
- Broad range of sophistication and operating philosophy
- Largest multi-state marketer has +/- 10% market share
- Retail segment sells around 11 billion gallons annually
- 50% of annual sales are made during 4 winter months

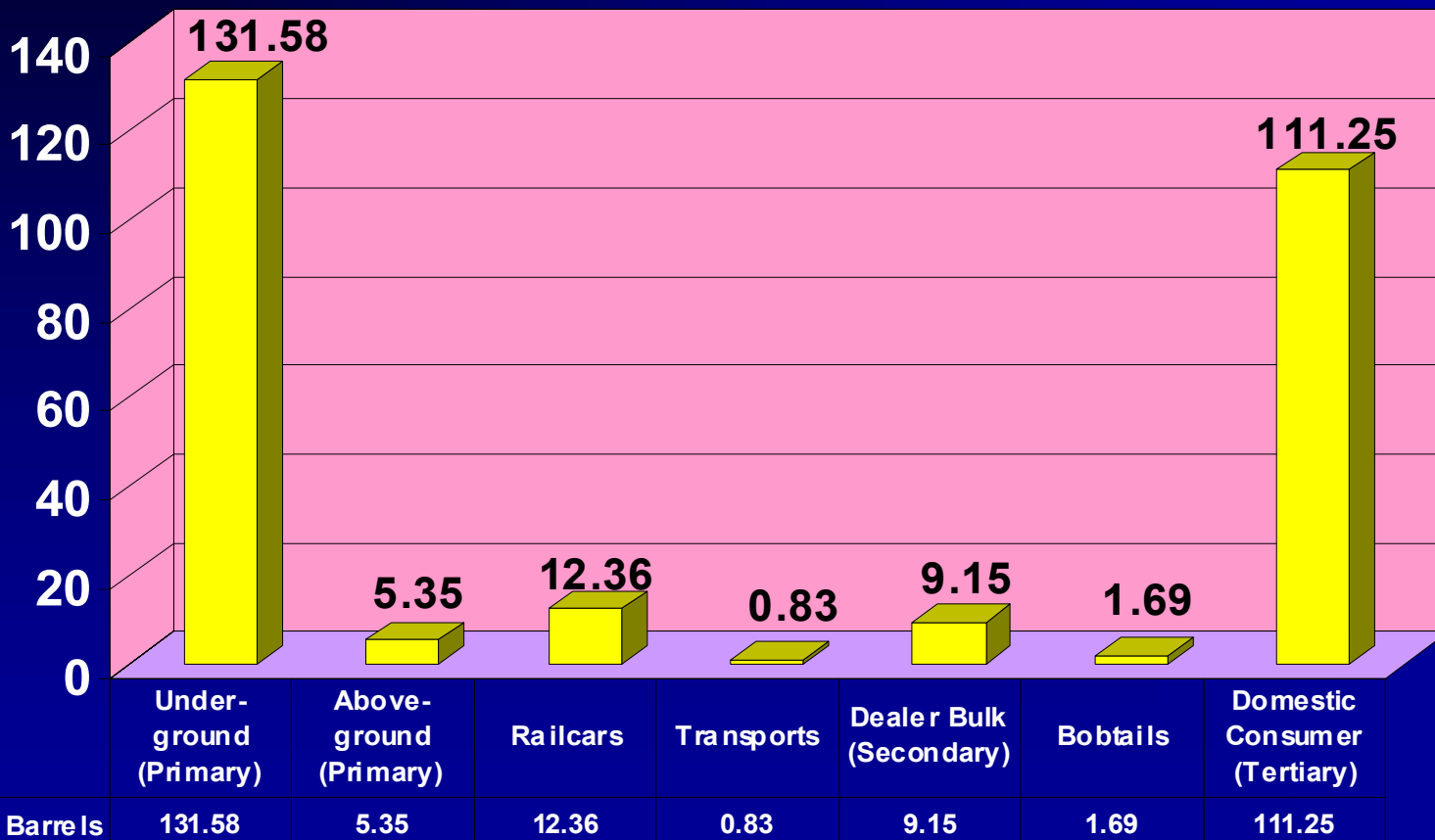
Retail Marketers Portion of Sales (2003)





U.S. Propane Storage Capacities

Million Barrels



Distribution Logistics

Over 250 Distribution Supply Points across U.S.

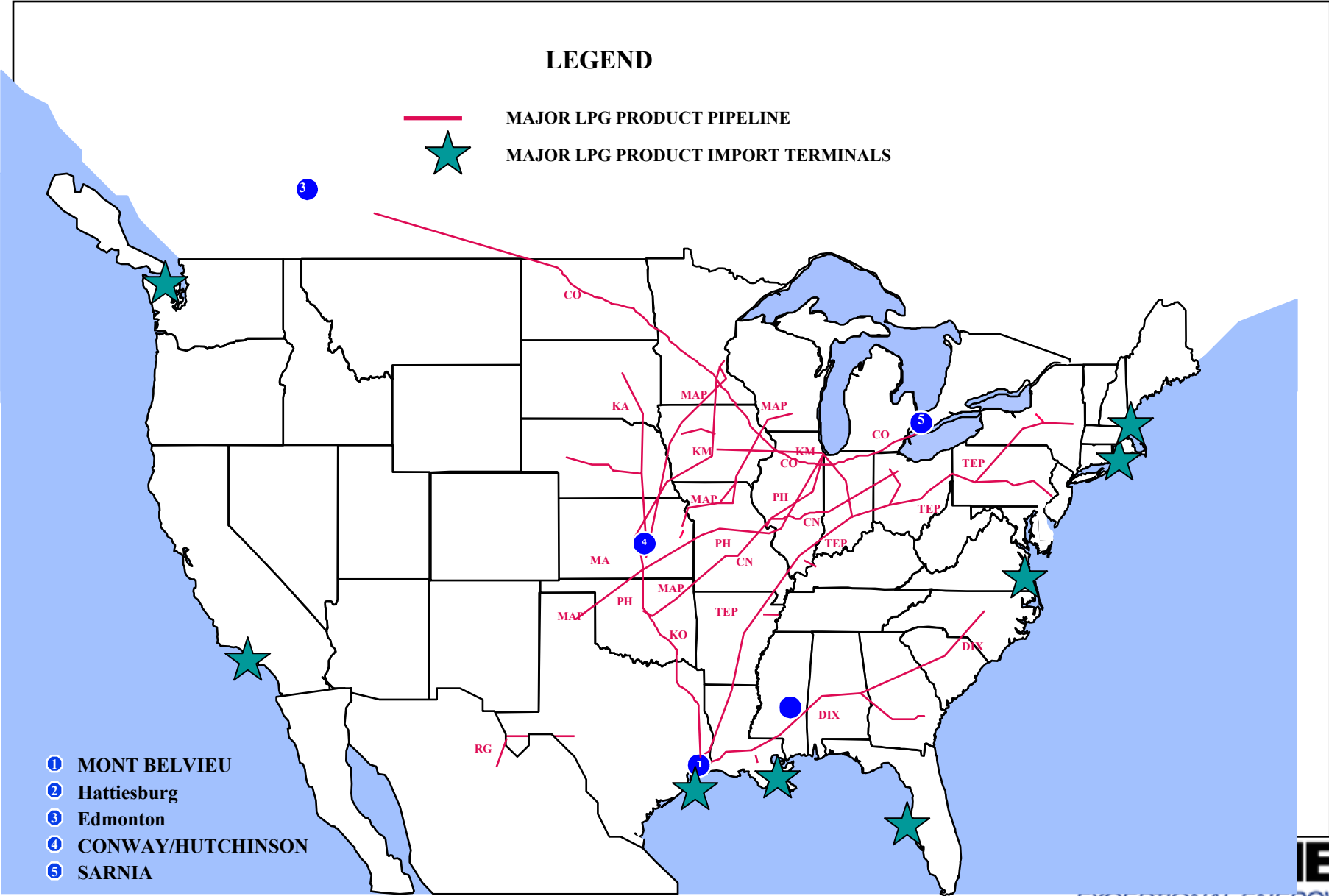
- Major storage/terminal facilities (Belvieu, Conway, Sarnia)
- Refineries
- Natural Gas Plants and Fractionation Facilities
- Pipeline Terminals
- Rail Terminals
- Waterborne Import Terminals

Truck transportation is required from these distribution supply points to the propane dealer's local bulk plant and then again to the end user tanks.

UNITED STATES NGL DISTRIBUTION SYSTEM

LEGEND

- MAJOR LPG PRODUCT PIPELINE
- MAJOR LPG PRODUCT IMPORT TERMINALS



- 1 MONT BELVIEU
- 2 Hattiesburg
- 3 Edmonton
- 4 CONWAY/HUTCHINSON
- 5 SARNIA

Transporting Propane

- High seasonal heating demand results in competition for limited delivery capacity during the winter months.
- Demand ratios in PA area are 6 X 1 (winter vs. summer) with pipeline delivery capacity of a little over 2 X 1 and refineries are less than 1 X 1
- Ratios require supplemental supply sources (storage/rail)
- Typical tank sizes for the various means of transportation:

■ Ocean Going Ships -----	4 MG to 18 MG
■ Barges -----	420,000 to 1 MG
■ Railcars -----	30,000 gallons
■ Transport trucks -----	10,000 gallons
■ Delivery Bobtails -----	3,000 gallons

Pennsylvania Sources of Propane

Retail Demand of 320 Million Gallons per Year

- **TEPPCO Pipeline** (Dubois, Greensburg, Eagle)
- **Refineries** (Warren, Sun, and Del City)
- **Storage Terminals** (Schafferstown, Sinking Springs)
- **Rail Cars directly to dealer bulk storage locations**
- **Rail Car Transshipment Terminals** (6 locations)
- **Import Terminals and Storage Facilities in surrounding states supplement supply in PA during peak demand**

Residential Storage

A residential home tank is sized based on propane appliances and types of usage (500 or 1,000 gallon tank)

Generally, residential customers will need a delivery every 30 days and should be able to go 45 days assuming normal winter weather

Deliveries are scheduled by a computer program that projects usage factoring in customer appliances, usage history, and actual Degree Days

Component Costs of Retail Price of Propane in PA Market

- **Basis Cost** (current market value @ Mt. Belieu, TX)
PLUS
- **Location Differential** (cost to deliver to particular market area)
PLUS
- **Transport Freight Cost** (tractor trailer delivery to bulk plant)
PLUS
- **Bobtail Delivery Cost** (final delivery to customer)
PLUS
- **Dealer operating costs, margins, etc.**

Location Differential Costs to PA Supply Points

Effected by:

- Geographic area within state
- Method of delivery (pipeline, rail, refinery)
- Season (summer or peak winter—6X1 ratio)
- Demand (weather pattern/timing)
- Performance of other supply points
- Performance of truck and rail transportation

In general Location Differentials at PA primary supply points:

- Summer 6-10 CPG
- Winter 11-20+ CPG

Truck Transportation Delivery Costs

Transports deliveries to local bulk plant effected by:

- Distance from supply source
- Seasonal Demands
- Driver DOT on duty time limitations
- Customer faithfulness to carrier during slow season
- Road conditions
- Availability of loading space
- Performance of other trucks and rail transportation

In general, the Transportation Differential in PA is 3-6 CPG

Summary of Winter Propane Supply for PA

- U.S. total inventory is at normal levels (68 million bb or 3 billion gallons)
- East Coast inventories are up 30% over last year (5.2 million bb, 226 million gallons)
- PA inventories are thought to be at normal levels (proprietary information)
- TEPPCO has increase pump capacity to NE by 420,000 gallons per day
- TEPPCO overall inventory level is twice as high as 5 year average
- U.S. propane base values are at +40 cpg over historic highs (85-90 cpg)
- Supply and transportation are positioned for normal weather patterns and demand
- Continued refinery propane production during peak demand is a crucial factor significantly influencing supply availability and pricing in this market
- Ultimately the most significant factor in the Mid-Atlantic propane market is the pattern and intensity of the cold weather