Natural Gas and Economic Development

Gas Industry Sectors

- Gas Producers
- Interstate Pipelines
- Local Distribution Companies
NATURAL GAS

Getting it to Homes, to Businesses, and to Work for America

Natural Gas Delivery System

- Producing Wells
- Gathering Lines
- Compressor Station
- Transmission Underground Storage
- 1,700 Electric Power Plants
- Regulator/Meter

INTERSTATE TRANSMISSION LINES

DISTRIBUTION AND SERVICE PIPELINES

- City Gate Station
- Local Utility Regulator
- Supplemental Fuels Liquified Natural Gas, Propane Air for peak demand days
- Regulator/Meter

- Approximately 2.4 million miles of U.S.

5 Million Commercial Customers
- Offices, Hospitals, Hotels and Restaurants

- 65 Million Households
- Utility Underground Storage

195,000 Factories and Manufacturers
Gathering Systems

- Include wells, gathering pipes and gas processing plants
- Gas processing plants separate useful byproducts such as propane and butane, and remove contaminants such as water

Transmission Systems

- Transmission lines carry natural gas from the gathering system to the city gate, or Town Border Station
- Compression stations every 50-100 miles maintain gas pressure in the transmission line.
Distribution Systems

• At the city gate, the gas is:
  – Metered (measured)
  – Transferred to the Local Distribution Company
  – Odorized with Mercaptan
  – Pressure reduced to distribution system level

CLEAN NATURAL GAS

Touching Every Segment of American Life

2012 NATURAL GAS
U.S. Consumer Consumption by Sector = 23.4 Tcf

- 30% Industrial (7.1 Tcf)
- 18% Residential (4.2 Tcf)
- 12% Commercial (2.9 Tcf)
- 39% Electricity Generation (9.1 Tcf)
- <1% Transportation (0.03 Tcf)
Gas Uses

- Traditional Heat/Hot Water
- Process, Production or Manufacturing
- Electric Generation
- Transportation (CNG and LNG)

Gas Terms

Important Terms:

- **Gas Load** - a customer’s gas needs that may include *peak flow, volume* and required *pressure*
- **Peak Flow (or Demand)** - expressed in cubic feet per hour
- **Volume** - quantity of gas used over a defined period of time, ordinarily expressed in cubic feet or Therms
- **Pressure** - applicable to gas lines, expressed in PSI - pounds per square inch or PSIG - pounds per square inch gauge
- **Regulator** – A device that is frequently used to reduce gas main pressure to serve a customer at a lower pressure
- **British Thermal Unit (Btu)** - a standard unit of measurement used to express heat value or energy content
Gas Values

1 cf = 1,000 Btu = .01 Therm

1 cf = 0.02832 cubic meters

1 Ccf = 100 cf = 100,000 Btu = 1 Therm

1 Mcf = 1,000 cf = 1,000,000 Btu = 10 Therms

1 Mcf = 10 Therms = 1 Decatherm (dt) = MMBtu = 1.054615 gigajoules (GJ)

1 Mcf = 1,000 cf = 1,000,000 cf

This table assumes that one cubic foot of gas contains 1,000 Btu. If one cubic foot of gas has a different Btu content, the above table would require a correction factor.
Rate Structure

- Residential
- Commercial Classes
- Industrial

Natural Gas Price Outlook

Our nation’s strong natural gas supply fundamentals and robust and reliable natural gas delivery infrastructure suggest that over the next decade, a range of demand scenarios can be met by a diverse and responsive supply market within an estimated price band of $4.00 to $6.50 per MMBtu.

Information Needed for a Capacity Assessment and/or Rate Estimate

Minimum Information Needed

• Site(s) Location (address, intersection or map)
• Peak Hourly Load (Mcf/hr)
• Delivery Pressure Required (PSI or PSIG)
• Usage (Mcf or Therms per month/year)
• Time Frame for Response
• Service Required Date

Information Needed for a Capacity Assessment and/or Rate Estimate
(continued)

Helpful Information — in addition to minimum

• Type of Business
• Type of Equipment
• Equipment Use (hours of operation)
• Site Plans
• Usage history from similar facility
• Future expansion plans
Why does the Utility need this information?

To determine the best way to serve the Customer

- Customer service requirements, especially peak demand, are critical to determine line capacities & ability to serve.
- Accurate anticipated load data is needed to assure that the addition of the new customer doesn’t harm other customers

To prepare energy cost estimates

- Tariff structures and customer charges reflect load patterns.....how much energy is needed and when.
- Well defined customer requirements can present opportunities to explore other service options

Why Bring Utility in on Development Projects?

- To Manage Customer and Community Expectations
  - Review by engineers and planners
  - Determine best way to serve the customer
  - Determine if impending change will affect service to other customers
  - Determine potential customer charges
The new era of abundant and affordable natural gas has impacted our economy through customer savings and significant job creation. The natural gas industry employs people in all 50 states and supports direct, indirect and induced jobs.

622,000 jobs are directly involved in exploring for, producing, transporting and distributing natural gas (direct employment).

723,000 additional jobs are created in industries such as agriculture and manufacturing that support and supply goods and services to the natural gas industry (indirect employment).

1.5 million jobs are supported when direct and indirect natural gas employees introduce their income back into the economy and create demand for further goods and services (induced employment).

Missouri Natural Gas Companies

- Investor Owned Utilities
  - Ameren – Central, Eastern and South Eastern
    - Columbia, Jefferson City, Wentzville, Rolla
  - Empire District Gas Company – West Central, Northern and NorthWest
    - Sedalia, Maryville, Chillicothe, Clinton
  - Laclede Gas & Missouri Gas Energy – Eastern, Western, and Southwest
    - St. Louis, Kansas City, Joplin, St. Joseph
  - Liberty Utilities – Northeast, Southeast, and West
    - Kirksville, Hannibal, Charleston, Butler
  - Summit Utilities – Lake Ozark and South Central
    - Lake Ozark, Branson, Lebanon, Gallatin
- Municipally Owned Systems
  - City Utilities of Springfield
  - Numerous other communities across Missouri

Source: The Contributions of the Natural Gas Industry to the U.S. National and State Economies, IHS Global Insight, September 2009
Gas Company Representatives

- Investor Owned Utilities
  - Ameren – Mike Chell 314 - 554 - 2375
  - Empire District Gas Company – Dan Klein 816 - 431 - 3055
  - Laclede Gas & Missouri Gas Energy – Cliff Garrett 314 - 575 - 4789
  - Liberty Utilities – Steve Green 573 - 755 - 0096
  - Summit Utilities – Phil Marcum 800 - 927 - 0787 x652

- Municipally Owned Systems
  - City Utilities of Springfield – Ben Jones 417 - 831 - 8560
  - Numerous other communities across Missouri

Questions/Comments?