

**National Association of Regulatory Utility Commissioners'  
Energy Regulatory Partnership Program**

**New York State Public Service Commission  
and the  
Croatian Energy Regulatory Council**

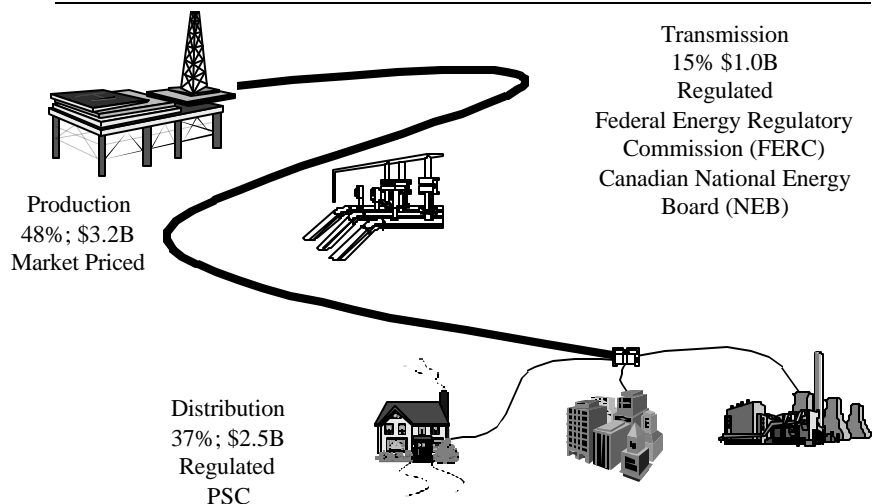
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November 2003

**New York State Gas Industry  
General**

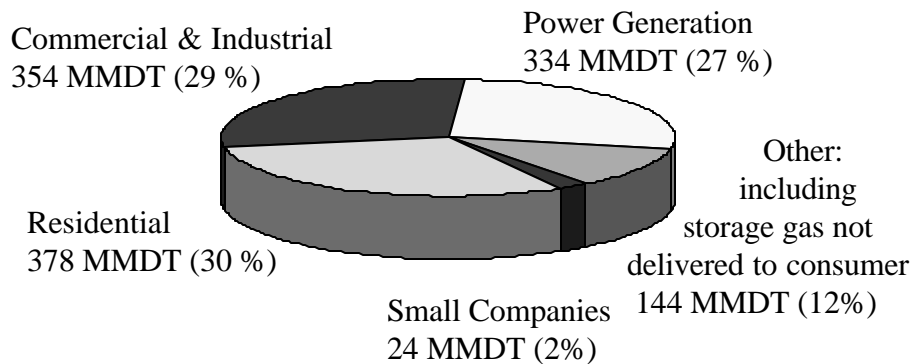
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- New York has a rich natural gas heritage.
  - North America's first commercial well was drilled in 1821 in Fredonia, New York.
  - The State produces about 25 billion cubic feet (Bcf)/yr., less than 2.5% of our annual demand.
- New York is the 4th largest consumer but almost all the gas we consume is imported.
- New York Commission allowed transportation of customer owned gas in 1984, almost one year prior to federal action.

## New York Cost Breakout Total Gas Revenues of Approximately \$6.7 Billion



## New York State Natural Gas Consumption by Sector



**Total Annual Consumption = 1,234 MMDT**

1 MMDT = 1,000,000 Dekatherms

1 Dekatherm = 1,000 cubic feet

Gas Year Nov. 1, 2000 to October 31, 2001

## **New York State Gas Industry Ratemaking Principles**

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- To allow a utility the opportunity (not a guarantee) to earn a return on its investment.
- Return is based on accounting costs (embedded) as forecast for a test period.
- Return on investment is computed by the ratio of net income divided by investment
- Net income is derived from total revenues less:
  1. Carrying charges on investment
  2. O&M Expenses
  3. Taxes
- What is a sufficient return?
  1. Capital Structure (Equity, Debt)
  2. Cost of Equity (Financial Markets)
  3. Cost of Debt (Per Books)

## **Rate Design Principles**

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- Total annual costs are allocated to customer classes by function:
  - Customer
  - Demand
  - Energy
- Each customer class should yield average return
- Tariffs are designed to recover allocated class costs
  - Customer Charge
  - Consumption Charge

## **New York State Gas Industry Major Components of Natural Gas Tariffs**

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### **Delivery Charge (Set by the Commission)**

- Reflects the costs of moving the gas from the citygate (interconnection with interstate pipeline company) to customer's meter

### **Gas Supply Charge**

- Adjusted monthly and reconciled annually
- Reflects the costs of gas supplies (commodity and capacity) purchased on interstate pipelines or from local production
- Commodity price is set by the marketplace; utilities use hedging instruments to moderate price volatility;
- Capacity price is set by FERC

## **New York State Gas Industry Major Components of Natural Gas Tariffs - (Cont'd)**

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### **Other Rate Components**

- Weather Normalization Clause - lower bills during colder than normal weather periods and raises bills during warmer than normal weather; tends to smooth customer bills and revenue stream to LDC
- Storage Service - allows for gas injections during the summer when prices are presumably low, and withdrawals in winter during peak demand and high prices
- Standby Service - back-up commodity supply service provided to transportation customers is needed.

## **New York State Gas Industry Major Customer Groups**

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### **Sales Customers**

- Purchase both delivery and gas supply service from the local distribution company (LDC)
- Generally residential and small commercial customers

### **Transportation Customers**

- Purchase delivery service from the LDC
- Purchase gas supply from a third party and have it delivered to the citygate for re-delivery by the LDC to the customer
- Large commercial and industrial customers have taken transportation service since 1985
- Smaller commercial and residential loads can be aggregated by gas marketers into groups large enough to purchase delivery service, since 1996

## **New York State Gas Industry Types of Gas Service**

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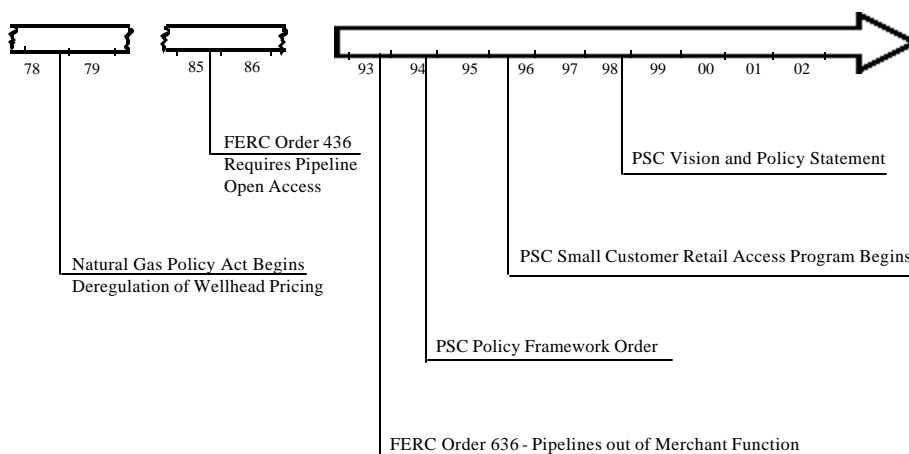
### **Gas Supply and Delivery Service provided by Utilities:**

- **Firm**
  - Customers full requirements provided at all times
  - Residential, Commercial and Industrial
- **Interruptible**
  - Discounted rates where service can be halted based on the need of the utility to use the supply for firm customers needs
- **Temperature Controlled**
  - Gas supply is automatically interrupted based on ambient temperatures generally 15°F or 20°F

## New York State Gas Industry Tariffs to Promote Energy Policy Initiatives

- Distributed Generation - rates soon will be developed and provide for small applications of natural gas fired electric generation
- Interruptible Service - provides customers who would normally use oil an opportunity to burn gas, a cleaner fuel, at reduced rates; in return, they must switch to their alternate fuel during peak gas demand periods. Flexible gas rates for these customers are set at a discount to the alternate fuel prices.
- Temperature-Controlled (TC) Service - for dual-fueled customers allow gas to displace oil consumption year round except during the coldest weather
- Air Conditioning Service - promotes summer gas usage and reduces electric peaks
- Gas for electric generation (GETGO) service - facilitates transportation to large electric generators; aid in negotiation of rates by providing a platform
- Economic Development Load Retention Rates - aid in load attraction, retention, and economic growth especially in designated Empire Zones
- Negotiated Tariff Rates - avoid uneconomic bypass and keep industry in the state
- Natural Gas Vehicle Service - provides competitive rates to vehicles and contributes to reduced air pollution

## Gas Industry Competition Timeline



## **New York PSC Gas Competition Vision and Policy**

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- Policy Statement Concerning the Future of the Natural Gas Industry in New York State and Order Terminating Capacity Assignment
- LDCs Should Exit Merchant Function over Next 3 to 7 years
- Issues Which Must Be Resolved to Achieve that Goal include:
  - Provider of Last Resort
  - Development of Marketer Infrastructure
  - Reliability (ensure capacity availability to N.Y.)

## **Provider of Last Resort**

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- Utilities are currently obligated providers
- Policy Question:
  - Should Commission Require Marketers To Be Providers of Last Resort?
  - Should Utilities Partially or Fully Exit?
    - Partial (retain small share ~ 20%)
    - Or completely exit?

## **Development of Marketer Infrastructure**

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- Electronic Data Interchange (EDI)
- Uniform Business Practices (UBP)
- Unbundling

## **Development of Marketer Infrastructure (cont'd)**

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- Electronic Data Interchange (EDI)
  - Need utility-marketer system compatibility
  - Standards have been developed
  - Implementation is proceeding



## **Development of Marketer Infrastructure (cont'd)**

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- Uniform Business Practices
  - Need for uniform retail access business practices
    - Uniform billing practices
    - Marketer creditworthiness requirements
    - Customer switching procedures
    - Discontinuing of service
    - Dispute resolution process
- Why Unbundle?
  - Enable marketers and utilities to charge for services each provides
  - Identify components and costs in rates
  - Develop backout rates
  - Allow competition to determine prices

## **Development of Marketer Infrastructure (cont'd)**

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Unbundling:

- What Services Can be Competitive?
- How to determine services and functions that can be delivered competitively?
- Need to unbundle to components and costs

## **What is Being Unbundled in the Natural Gas Business**

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### Services Competitively Available Now

- Commodity
- Capacity
- Balancing
- Billing

### Potential Competitive Services

- Metering
- Information Services
- Anything other than the physical distribution plant

## **New York Program Overview**

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### Large Customer Transportation Available Since 1983-1984

- today 2,800 customers participate and account for 35% of LDCs throughput

### Small Customer Transportation Available in 1996

- at August 2003, 19.3% of small customers LDCs throughput from 349,700 customers (7.7%) have migrated to transportation service.

## **Retail Access Summary at August 2003**

### **Small Customer Transportation**

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- Number of Gas Marketers Certified 65
- Number of active Gas Marketers 52
- Municipal Suppliers 18
- Total Customers: Residential 293,200  
Non-Residential 56,500  
Total 349,700

#### **Percent of Throughput:**

Residential	13.3%
Non-Residential	31.6%
Weighted %	19.3%

## **Reliability**

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- Service Must be Maintained Especially Heating Load
- Commodity and Capacity Needed
- Who Will Hold Pipeline Capacity?
  - Utility
  - Marketer
  - Combination

#### **KEY QUESTION:**

- In event of marketer default, will title to capacity revert to New York State?
  - How will reliability be assured?

## **Reliability (cont'd)**

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- How New York State Ensures Reliability:
  - PSC monitoring of utility portfolios
  - PSC Reliability Collaborative
    - Monthly meetings (face-to-face)
    - Includes all stakeholders (utility, marketer, pipeline, regulator)
    - Cooperative process ensures coordination to meet New York's reliability needs

## **Policy Statement Concerning Gas Purchasing Practices**

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### **Purpose:**

- To Provide diversity in acquisitions and to defuse price spikes and valleys for gas supplies.

### **Compliance:**

- LDCs need to develop an acquisition strategy to include a mix of purchase options with a view toward fostering price stability.
- Strategies should include guidelines and limits to support the mix of options.
- Strategies should include an assessment of risk for each option.

## **Policy Statement Concerning Gas Purchasing Practices (cont'd)**

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### **Policy:**

- LDCs should consider all available methods for purchasing gas and assess the benefits of each approach.
- Methods may include: short and longer term fixed price purchases, spot acquisitions, use of financial hedges, and contracts providing flexibility in the amount taken over term of the agreement.
- Volatility of customer bills is one of the criteria, as well as cost and reliability, that should be considered in purchasing strategies.
- Excessive reliance on any one gas pricing mechanism or strategy does not appear to reflect the best management of the gas portfolio.
- Any gas utility without a diversified gas pricing strategy will have a heavy burden to demonstrate that its approach is reasonable.

## **Reducing Gas Price Volatility**

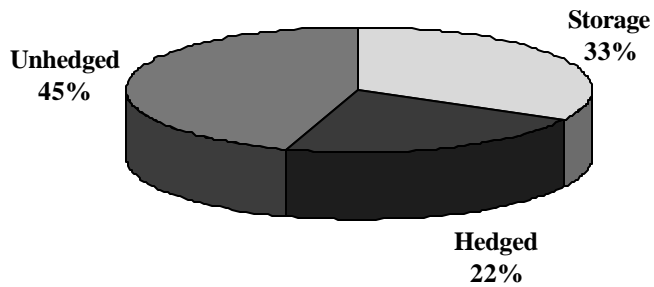
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NY LDCs have hedged a significant portion of their gas supply.

- storage inventories provide a natural hedge
- a portion of flowing gas is hedged either through a physical hedge or a financial hedge

## Typical Winter Supply Portfolio

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## Physical Hedges

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- **Storage**
  - LDCs provide 26% to 40% of their normal winter supply from storage.
  - Storage provides a natural hedge.
    - \* Gas is injected into storage from April through October at market prices.
    - \* Gas is withdrawn from storage from November through March at a fixed price.
  - Market area storage is used primarily for city gate supply, transportation balancing and swing supply services at a fixed gas cost.
  - Production area storage is also used by a few companies to protect supply from force majeure situations and for price protection of normal flowing supplies.
- **Fixed Price Contracts**
  - LDCs provide up to 25% of their normal winter supply with fixed price contracts.
  - Contracts are purchased to flow specific gas volumes to the city gate at a fixed price.
  - Contracts are purchased for specific months up to 16 months in advance.

## Financial Hedges

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- Financial Hedges
  - LDCs provide up to 35% of their normal winter supply with financial hedges.
  - Futures and Options Contracts are purchased to provide the ability or right to flow gas at a fixed price.
  - Futures are at fixed prices by delivery month for specified volumes.
  - Options can be simple calls or puts, collars or cost-less collars, and swaps.

## Liquid Point Concept

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- A point at which sufficient gas supplies would always be available, thus eliminating the need to hold upstream capacity beyond that point
- This impacts:
  - LDCs
    - The Commission's Gas Policy Statement says that LDCs should hold capacity contracts to the absolute minimum necessary for system operation and reliability purposes.
  - Retail Marketers
    - Beginning April 1, 1999 the Commission allowed marketers to provide their own capacity instead of having to take capacity released from the LDC. The Commission required this to be firm, primary point delivery capacity for the winter (Nov.-Mar.) from the production region or a market area liquid point.

## **Implementation**

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- August 2000, Commission decided that:
  - liquid trading points would be identified by LDCs, in consultation with Staff, marketers & pipelines
  - marketers must provide an affidavit (including contract #) to show compliance
  - LDCs should identify these points at least 60 days in advance of marketer compliance date
  - liquid points need to be reviewed over time
- The Natural Gas Reliability Advisory Group (NGRAG) identified inconsistencies in the liquid points identified by LDCs
- This led to discussions of:
  - What makes a point a liquid point?
  - How do you measure liquidity?

## **What Makes A Point Liquid?**

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- These discussions identified the following characteristics of liquid points (not all of which have to be present):
  - More upstream capacity than downstream
  - Sufficient volumes at peak periods and year round
  - More than one pipeline serving the point
  - Presence of storage
  - Presence of electronic trading at the point
  - Reported price indices
  - Narrow bid/ask spread
  - Sufficient volumes and numbers of buyers and sellers



## **NYGAS Liquidity Study**

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- In the Fall of 2001 NYGAS initiated a study of Liquidity, building on the groundwork done by the NGRAG:
  - 12 Trading points in the Northeast were identified for evaluation. Henry Hub was used as a reference point. Data was collected and evaluated on volumes, prices, number of traders, number of interconnecting pipelines, storage, etc.
- The study provides:
  - A technical understanding and definition of a liquid trading point
  - Quantitative and qualitative assessments of the characteristics of liquid points
  - A methodology and metric that evaluates liquidity of trading points
- It concludes that 3 Northeast points are liquid:
  - Columbia, Appalachian Pool
  - Dominion, Southpoint
  - Dawn, Ontario
  - Other points were ranked as various levels of potentially liquid.

## **Where Does Our Safety Authority Come From?**

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Public Service Law, Article 4, Section 65(1) states...

“Every gas corporation...shall furnish and provide such service...and facilities as shall be safe and adequate and in all respects just and reasonable.”

## **Statutory Authority (Cont'd)**

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Public Service Law, Article 4, Section 66(2) states the Commission...

- Shall investigate the methods employed by corporations distributing and supplying gas
- Have power to order reasonable improvements
- Protect the public

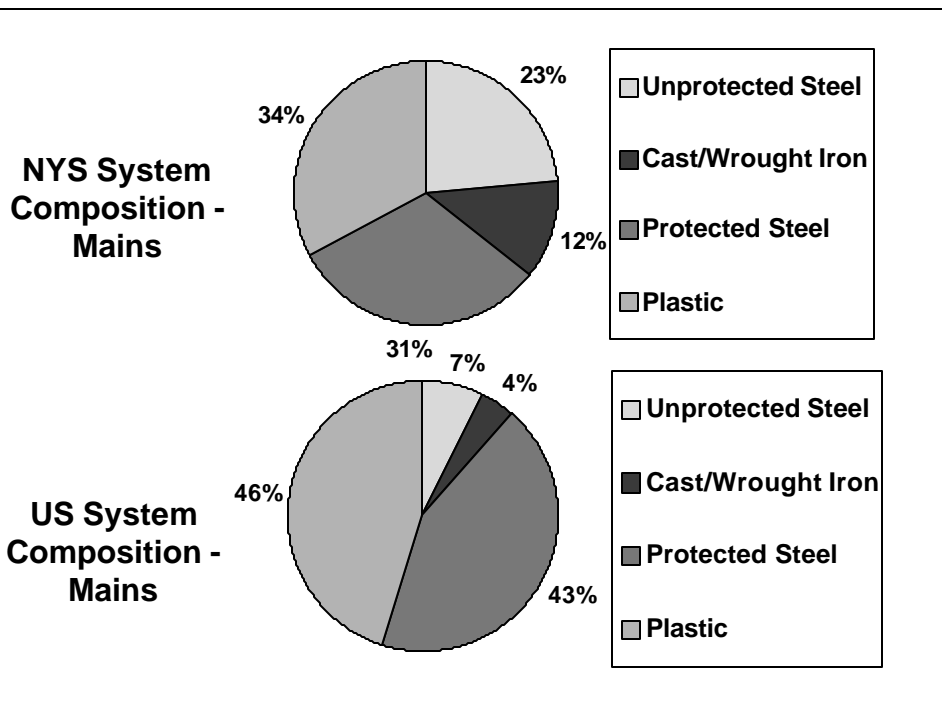
## **What Drives Our Safety Program?**

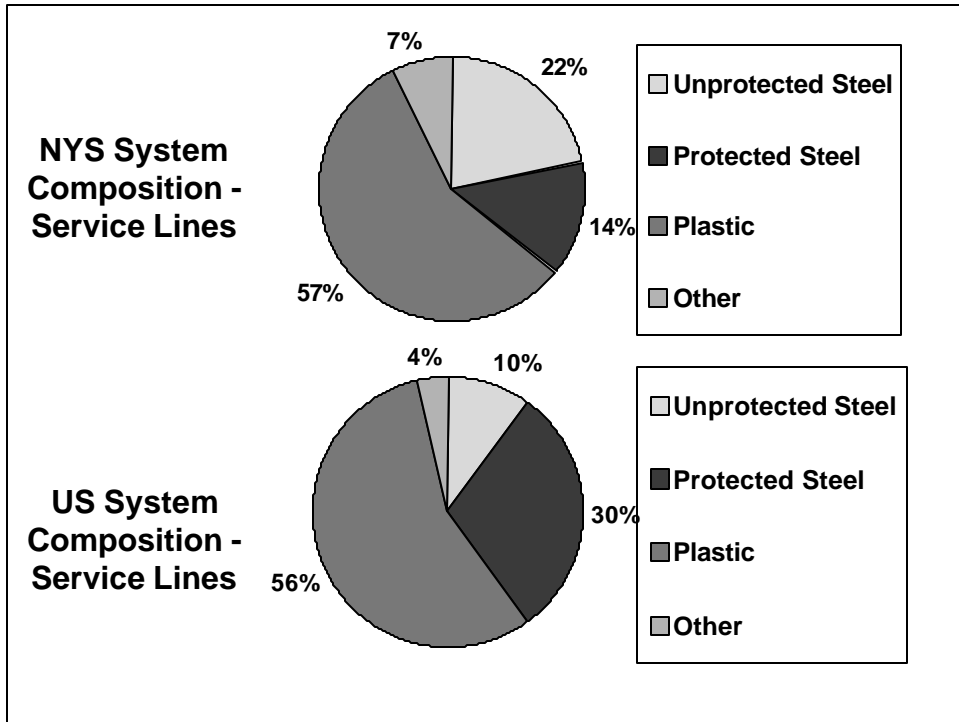
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- Legislation
- Accidents
- Federal Requirements
- Pipeline Construction

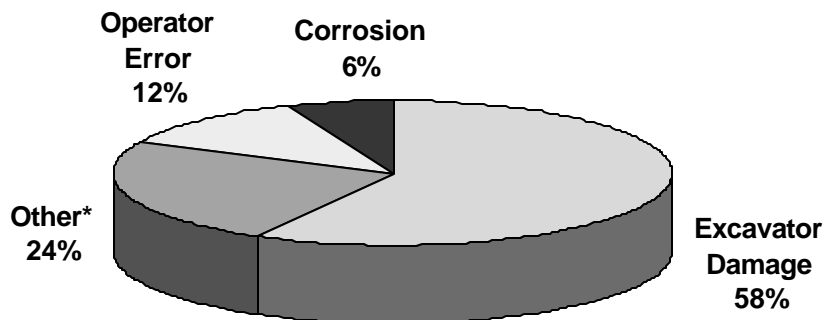
## Facilities Subject to Safety Program

- 4,900 miles of gas transmission lines
- 45,000 miles of gas distribution lines
- 3 million gas service lines
- 1,300 miles of liquid pipelines
- 90 miles of steam pipelines





## What Are The Causes Of Pipeline Fires & Explosions



\*Other includes material defects, construction defects, natural disasters, and undetermined causes.

## **Current Gas Pipeline Safety Activities**

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- Record & Field Inspections for Code Compliance
- Construction Inspections
- Incident Investigation
- O&M Procedure Review
- Facility Design & Specification Review
- Damage Prevention
- Code Changes and Waivers
- Safety Performance Measures

## **Damage Prevention Program**

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- Third party damage to pipeline facilities is the #1 cause of incidents.
- Contractors proposing underground construction must notify the One Call system 2 working days prior to start of excavation.
- One Call center notifies utilities (gas, electric, water, steam and communications) who must mark out their facilities in the affected area prior to the contractor commencing excavation.
- Citations and possible fines are issued to parties who do not comply with Damage Prevention regulations

## **Safety Performance Measures**

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### **Purpose**

- Ensure safety in a changing environment
  - Address risks
  - Measure performance
  - Motivate companies to maintain and improve performance
- Performance Measures
  - Damage Prevention
  - Leak Management
  - Emergency Response Times

## **Safety Performance Measures (cont'd)**

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- Damage Prevention
  - Reduce damages that occur
    - damages caused by third party excavators
    - damages caused by company excavators
  - Damages due to company error
    - failure to accurately mark the underground facility
  - Damages due to excavator error
    - failure to notify the One Call system
    - failure to verify facility location
    - operating excavation equipment too close to the facility

## **Safety Performance Measures (cont'd)**

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- Leak Management
  - reduce the number of leaks that occur
    - leaks discovered per mile of pipe
  - repair potentially hazardous leaks
    - leaks repaired on mains by type and pipe material
    - leaks repaired on service lines by type and pipe material
  - reduce backlog of leaks
    - potentially hazardous leaks pending repair at year end

## **Safety Performance Measures (cont'd)**

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- Emergency Response Times
  - measure time to respond to gas leak calls
  - desirable response levels
    - 75% of calls within 30 minutes
    - 90% of calls within 45 minutes
    - 95% of calls within 60 minutes

# Con Edison Manhattan Steam System

## Steam System Overview

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- Operates in the Borough of Manhattan, NYC
- 90 miles of transmission and distribution pipelines
- 1833 service lines to individual customers
- Pipes range in size from 1" to 30" diameter
- Normal operating pressure 150 - 170 psig @ 400°F
- Steam supplied from 10 generating plants



## **Customer Uses for Steam**

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- Space Heating
- Air Conditioning
- Hot Water
- Sterilization (hospitals)

## **Steam Customer Breakdown**

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- 601 small residential/commercial customers
- 661 large commercial customers
- 571 apartment buildings

## **Steam System Safety Issues**

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- Asbestos Insulation
  - 10 year program to eliminate asbestos from accessible manholes and vaults was completed in 1999
  - Buried facilities are covered with asbestos insulation
  - Health and environmental concerns with asbestos release in the event of a pipeline failure
- Expansion Joints
  - Program to replace older joints prone to failure
- Deteriorated Manholes
  - Program to rebuild structurally deteriorated steam facility manholes

## **Steam System Enhancements**

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- Remote steam metering
- Meter replacement program
- Equipment upgrades at all pressure monitoring and control stations

## **Steam System Rates**

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- Steam Service is not competitive with individual customer-owned steam facilities if priced at fully allocated cost of service.
- Steam system has low load factor (30%) – mostly winter use and expensive distribution costs.
- Steam is produced by steam-only stations and as a byproduct from electric stations
- Incremental cost pricing is needed
- Combination steam-electric station costs are charged to electric customers. (Thus, savings in heat rate are fully attributed to steam rather than shared with electric)
- Only straight-steam generating plant costs are assigned to steam customers