LTGIP Stakeholder Workshop
Gas System Overview and Regulation

August 27, 2024

Workshop Logistics & Topics

- Dedicated Web Page: AmerenIllinois.com/GIP
  - *Link to filed Workplan*
  - *Meeting information and materials*
  - *Comment portal*
  - *Subscribe to AIC Distribution List*
- Previous Workshops
  - *Introduction & work plan development*
- Possible Upcoming Workshop Topics
  - *Gas consumption & demand forecasting*
  - *Capital planning tools and approaches*
  - *NPAs / Innovation levers*
  - *Impact Analysis of Preferred Portfolio*
    - *economics, equity, and environment*
- Targeting ~6 weeks between workshops

Today we will discuss an overview of the natural gas system that establishes a baseline for further conversations on demand forecasting, capital planning and innovation assessments over a long-term planning horizon.

Meeting objectives

A. System Characteristics and Operation

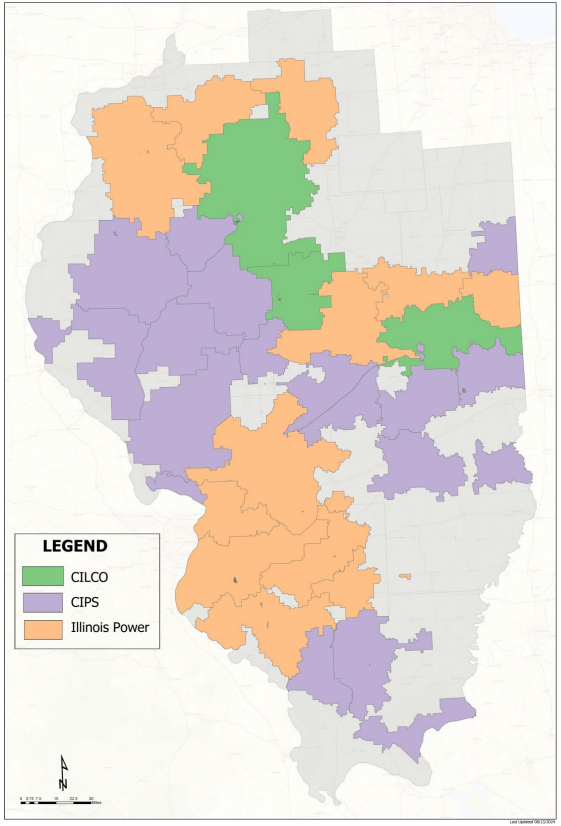
B. How Gas Flows Through the System

C. Customers, Consumption and Demand

D. Regulations and Compliance Strategies

History and Formation of Ameren Illinois

- Ameren was formed as a result of the merger between CIPSCO Incorporated and Union Electric Company on Dec. 31, 1997.
- Ameren acquired CILCORP Inc., parent company of Central Illinois Light Company, in 2003 and Illinois Power Company from Dynegy Inc. in 2004.
- In 2010, Ameren's three Illinois utilities completed a merger to form a single public utility – Ameren Illinois Company (AIC).



Downstate Illinois Service Territory Characteristics

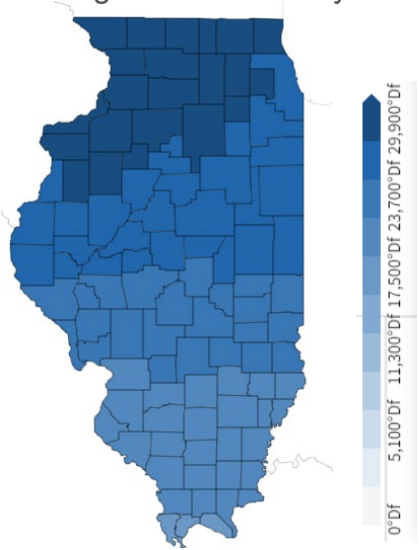
- Relatively low customer density across large geographic area
  - 811,557 gas customers
  - 43,700 square miles of service territory
- Largest urban areas include Metro East, Peoria, Champaign, Springfield, Carbondale/Marion, and Decatur
- High percentage of rural area
- A top producing region of agricultural products

Territory Specific Gas Planning Considerations

- Two peak gas demand drivers in many areas of the territory
- Cold winter weather increases demand for heating
- Harvest season increases demand for grain drying
- Highest peaks in some pressure systems are during the grain drying demand season

Commercial Grain Dryer

Large Heating Degree Day (HDD) range across territory



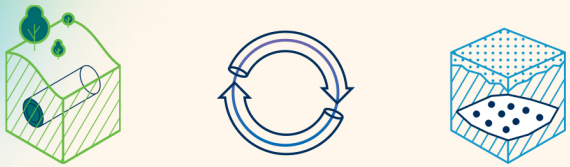
County Heating Degree Days in Illinois from Feb 2019 – Jan 2024

Source: National Centers for Environmental Information

Reliability - Natural Gas System Characteristics

- Underground infrastructure with linepack and looped, redundant systems in many areas protect the system from disruption.
- Reduced disruption compared to other forms of energy delivery.
- Gas outages are very uncommon on a per customer basis.

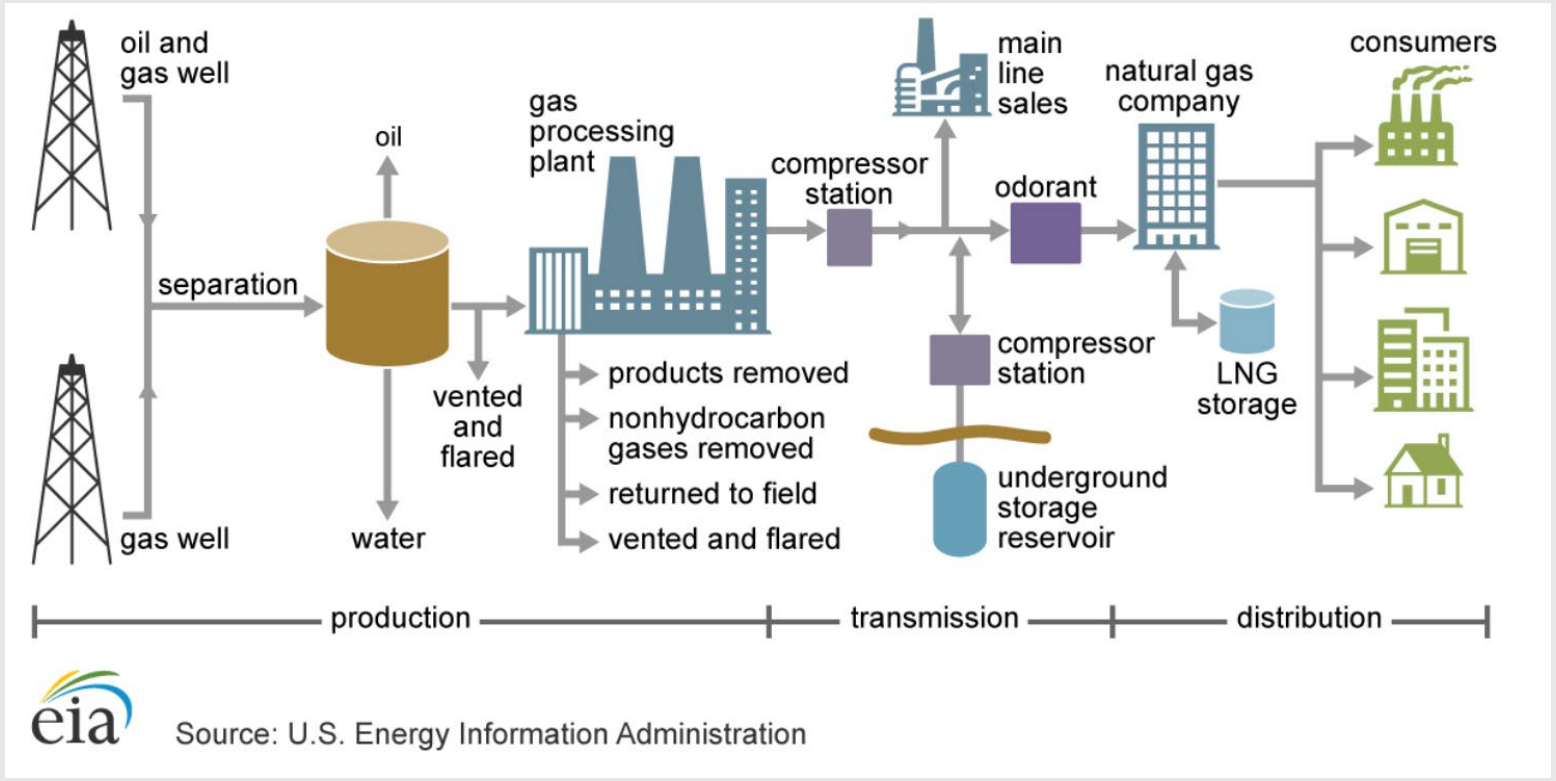
The natural gas system's physical characteristics provide stability to the energy system.



Safety - Natural Gas System Characteristics

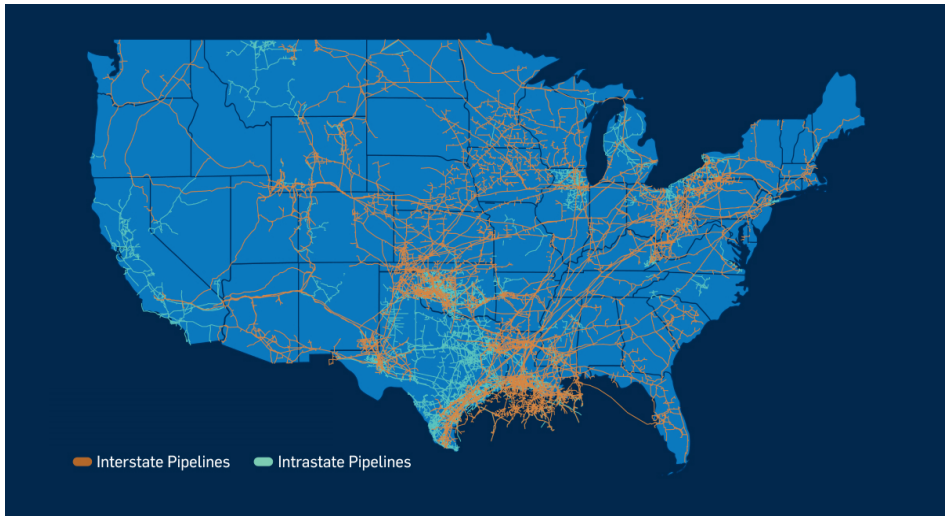
- AIC has a strong track record and commitment to safety.
- *"Pipelines are among the safest and least costly ways of transporting large quantities of energy products essential to our economy."* - U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA)
- AIC completed voluntary implementation of a Pipeline Safety Management System (PSMS) according to recommendations from the National Transportation Safety Board (NTSB) and PHMSA from 2020 – 2022 to strengthen processes mitigating operational risk.

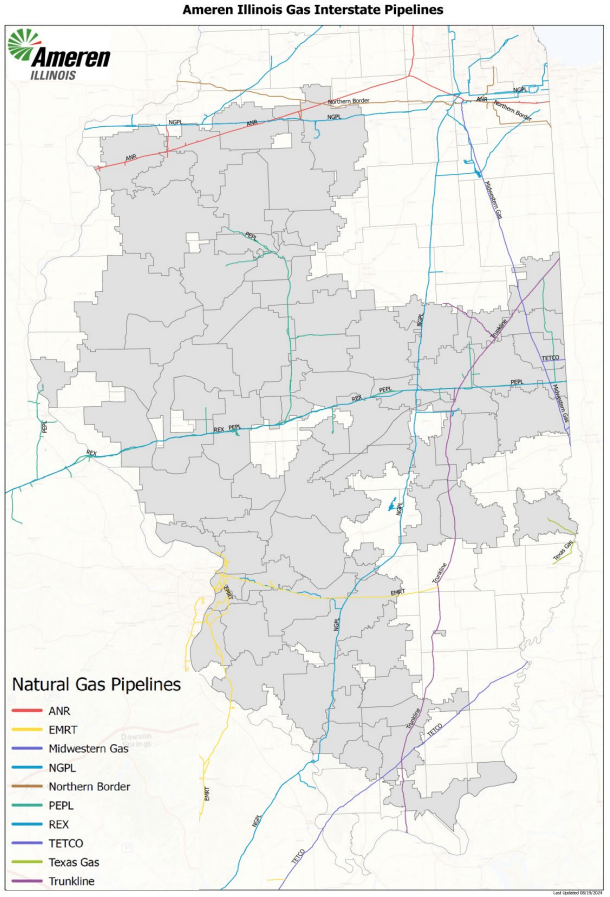
How does AIC get the gas it delivers to customers?



Interstate Pipeline Network

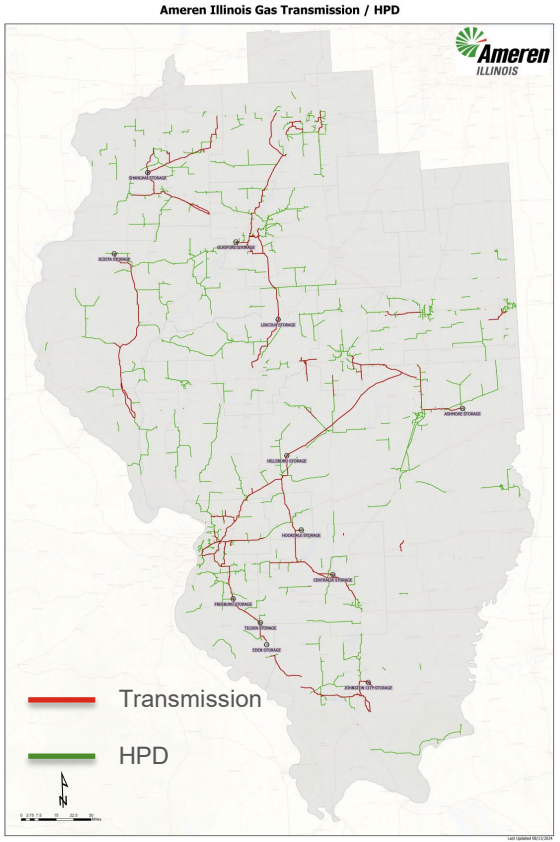
- AIC is centrally located and has interconnection with ten interstate pipelines
  - Diversity of gas supply
  - Competitive capacity pricing



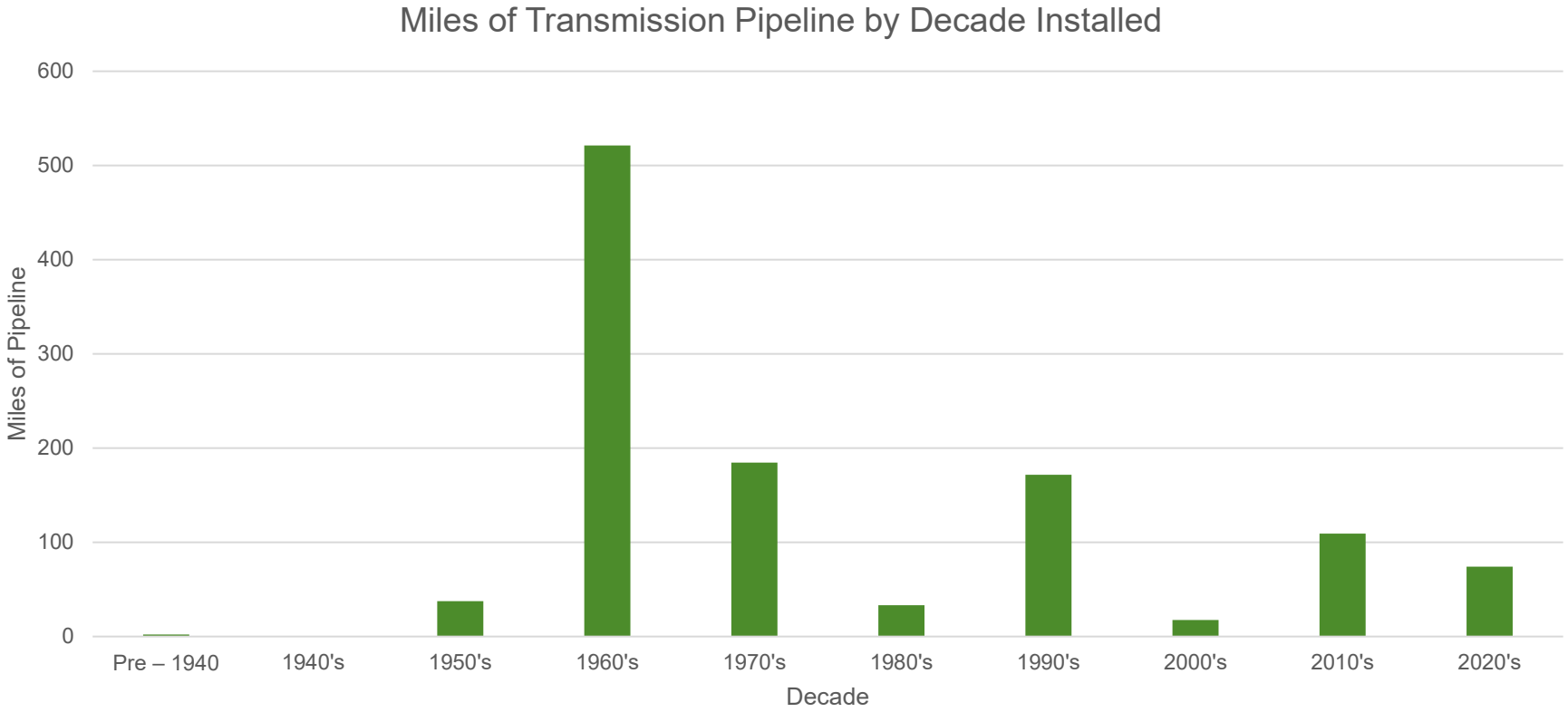


AIC Gas Transmission & High-Pressure Distribution (HPD) System

- Interstate Pipelines supply gate stations where gas is measured and odorized as it enters the AIC Transmission System. Gas flow rate and pressure are monitored and controlled.
- Transmission pipelines are made of steel and supply large industrial customers and distribution systems across the territory.
- Customers in rural areas close to transmission or high-pressure distribution lines may be served by a “Farm Tap”.
- AIC owns and operates approximately 1,152 miles of natural gas transmission pipelines.

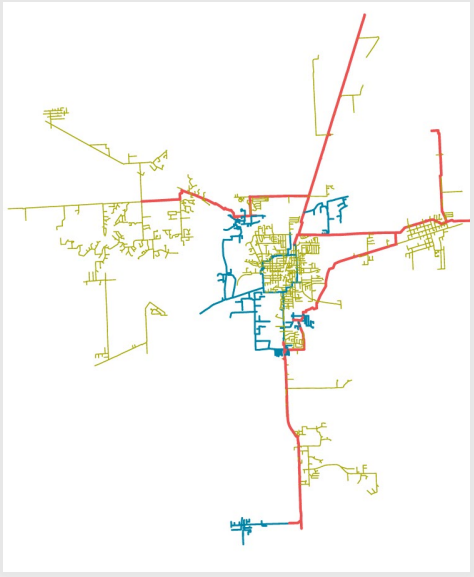


AIC Gas Transmission & High-Pressure Distribution (HPD) System



AIC Gas Distribution System

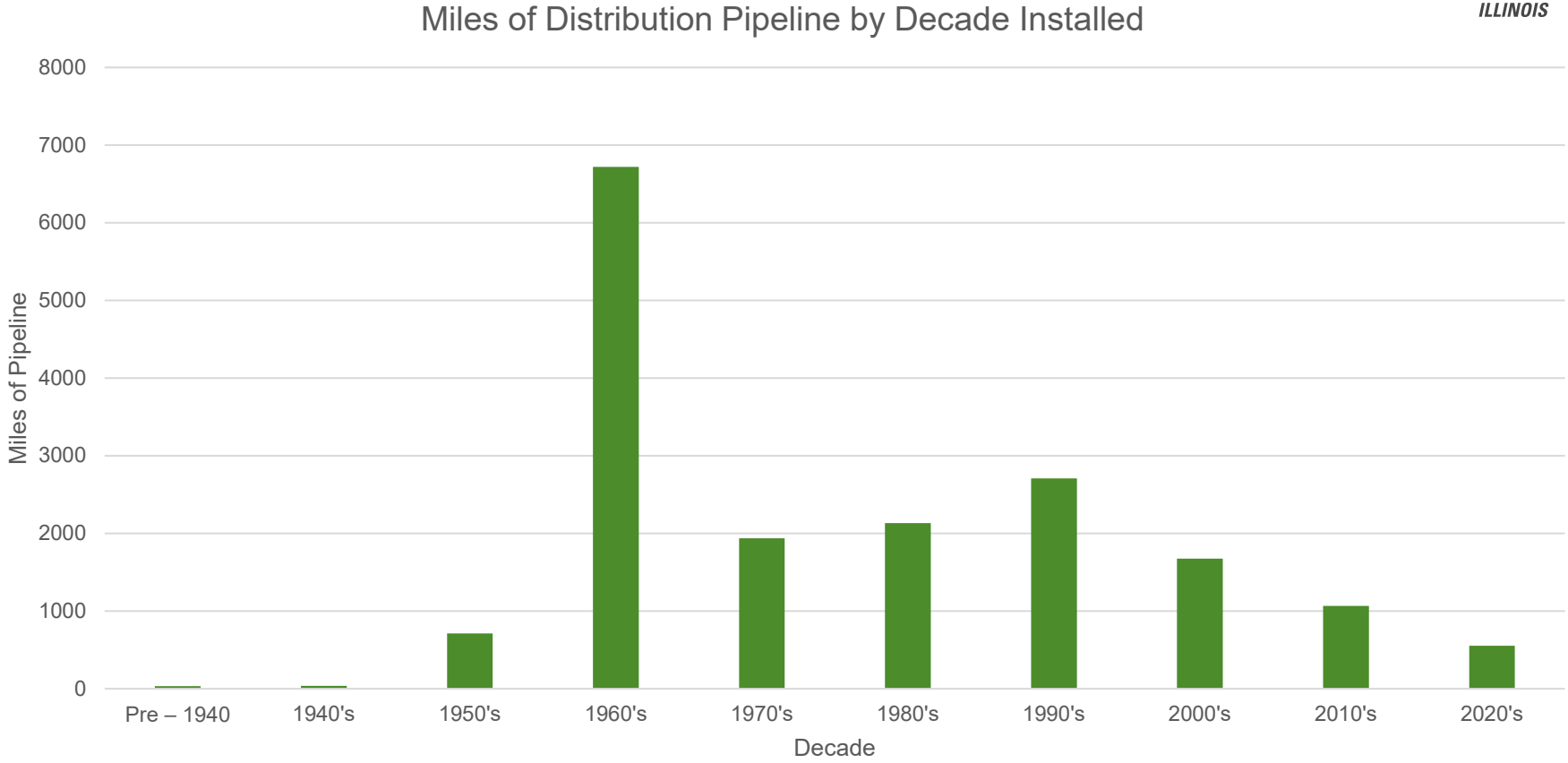
- Pressure regulator stations reduce the pressure from transmission lines as gas enters the distribution mains.
- Service lines branch from the distribution mains to supply homes, businesses, and small industrial facilities.
- Each customer is equipped with a meter that tracks the volume of gas delivered for billing purposes.
- AIC owns and operates 17,562 miles of distribution pipelines and over 811,000 services that are largely either cathodically protected coated steel or polyethylene plastic pipe.



Example Town Distribution System Map

- >100 psig
- 25 - 100 psig
- <25 psig

AIC Gas Distribution System



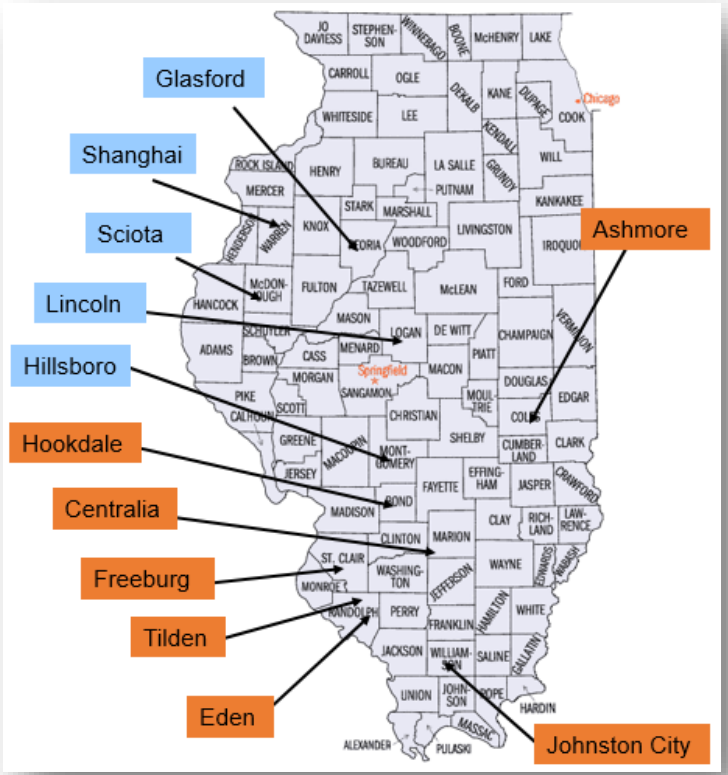
Newly Constructed Pipelines

Benefits of new facilities

- Modern pipeline technology
  - Pipe manufacturing, pipe materials, construction methods, and maintenance practices continue to advance over time improving the integrity of newly constructed facilities over legacy pipelines.
- Compliance with current construction standards
  - Regulations and standards have evolved to further support safety and performance.
- Cost savings
  - Newer pipelines may reduce maintenance and assessment costs compared to legacy pipelines.

AIC On System Gas Storage

- 12 underground natural gas storage fields in geographically diverse locations across the service territory.
- 24.2 Bcf working gas storage capacity
- 575,000 Mcf/day peak deliverability → 45% of peak load for AIC.
- AIC transmission system used to inject into storage field during warm months and deliver gas from storage to customers on the coldest days of the year.
- Gas storage fields equipped with compression facilities and gas processing equipment to ensure gas withdrawn from fields meets pipeline specifications prior to delivery to customers.



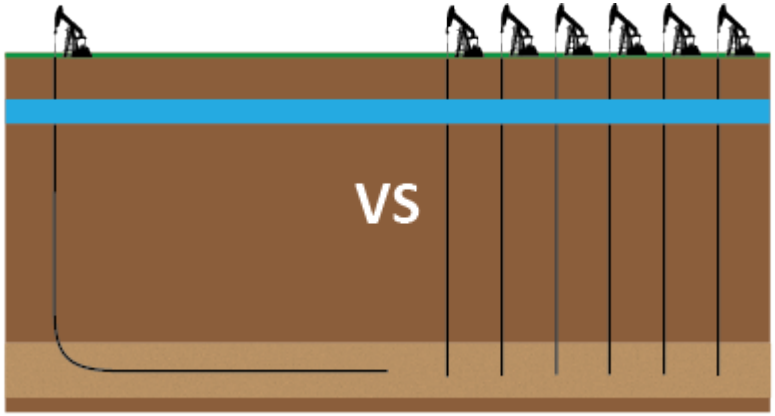
AIC On System Gas Storage

- Company-owned storage is an essential element of AIC's gas supply strategy delivering a reliable source of natural gas in the winter that is protected from price volatility and interstate pipeline transportation risk.
- The peak day deliveries are a direct offset to gas volumes that would otherwise have been sourced from interstate pipelines' services requiring additional fees.
- The ability to store gas within the AIC service territory and delivery via the AIC transmission system increases resiliency and reliability.

AIC Gas Storage Horizontal Wells

- Program to install horizontal wells at a number of AIC's storage fields in place of existing vertical wells.
  - Began in 2019 with continued planned future investments.

- Horizontal wells reduce O&M spend, optimize capital investments, and reduce operational risk.
  - Decrease the overall well count for the storage field.
  - Eliminate miles of transmission lines required to connect storage field wells to the AIC gas system.

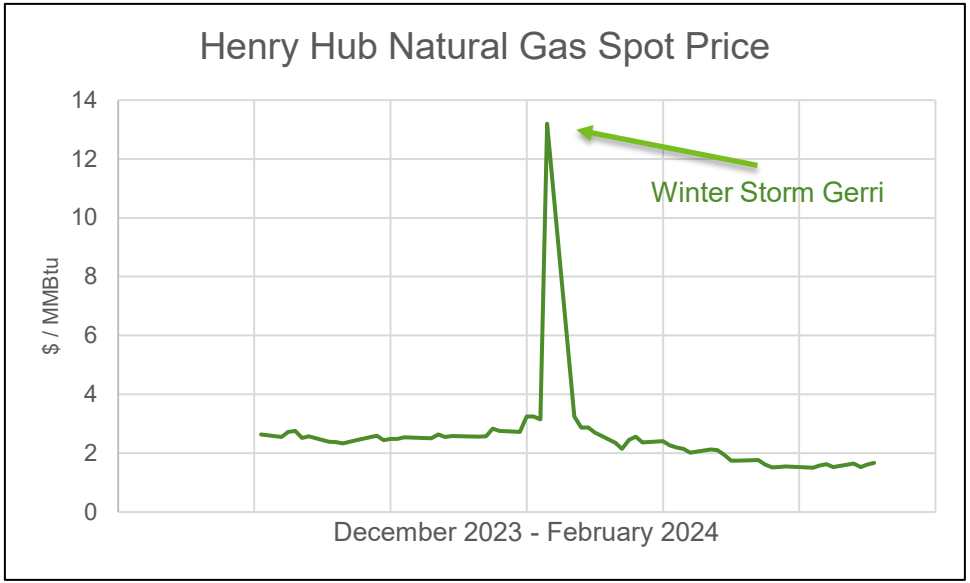


Source: Texland Petroleum

AIC Gas Supply Strategy

Winter Storm Gerri January 13-16, 2024

- AIC saved customers roughly **$22 million** or $27 per customer during winter storm Gerri.
- Our diversified natural gas portfolio, gas storage capabilities, and strategy of purchasing gas during the summer months limits purchases of natural gas on the open market when gas prices spiked during the cold spell.
- Approximately 90% of Ameren Illinois' winter natural gas usage is set at a known price.

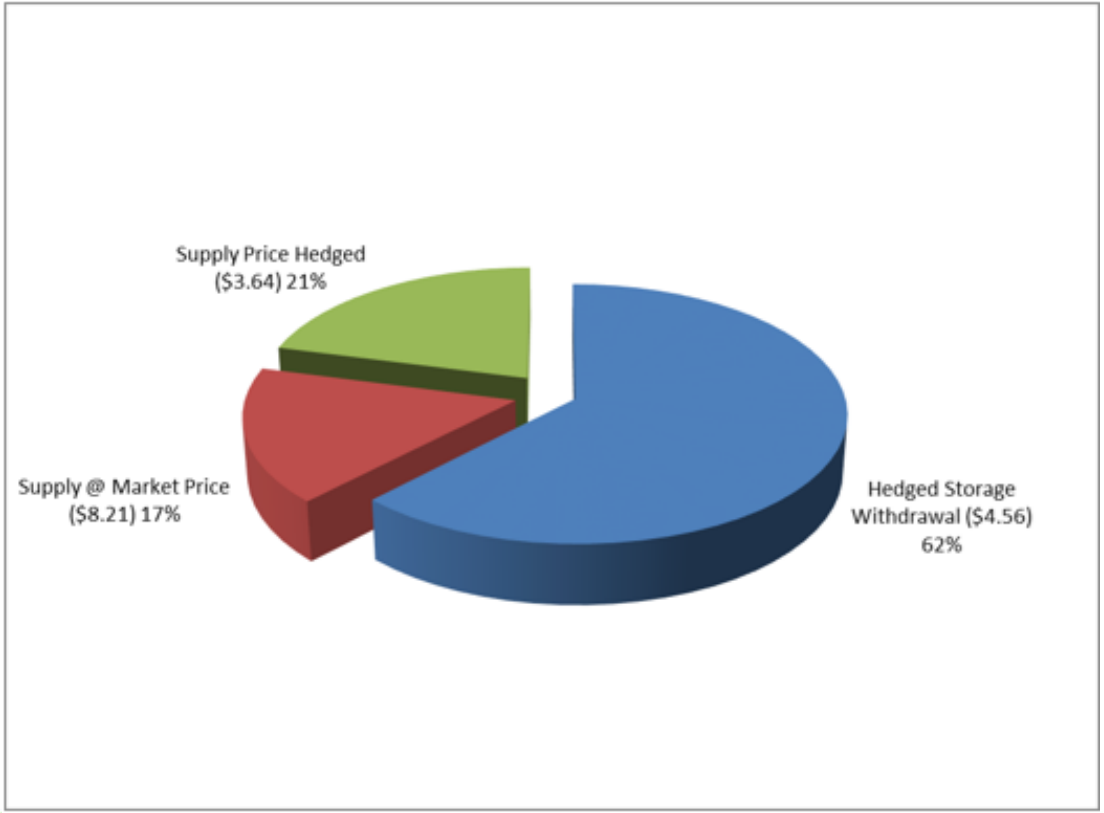


Source: Thomas Reuters via EIA website

AIC Gas Supply Strategy

Gas Supply Position Entering 2022 – 2023 Winter

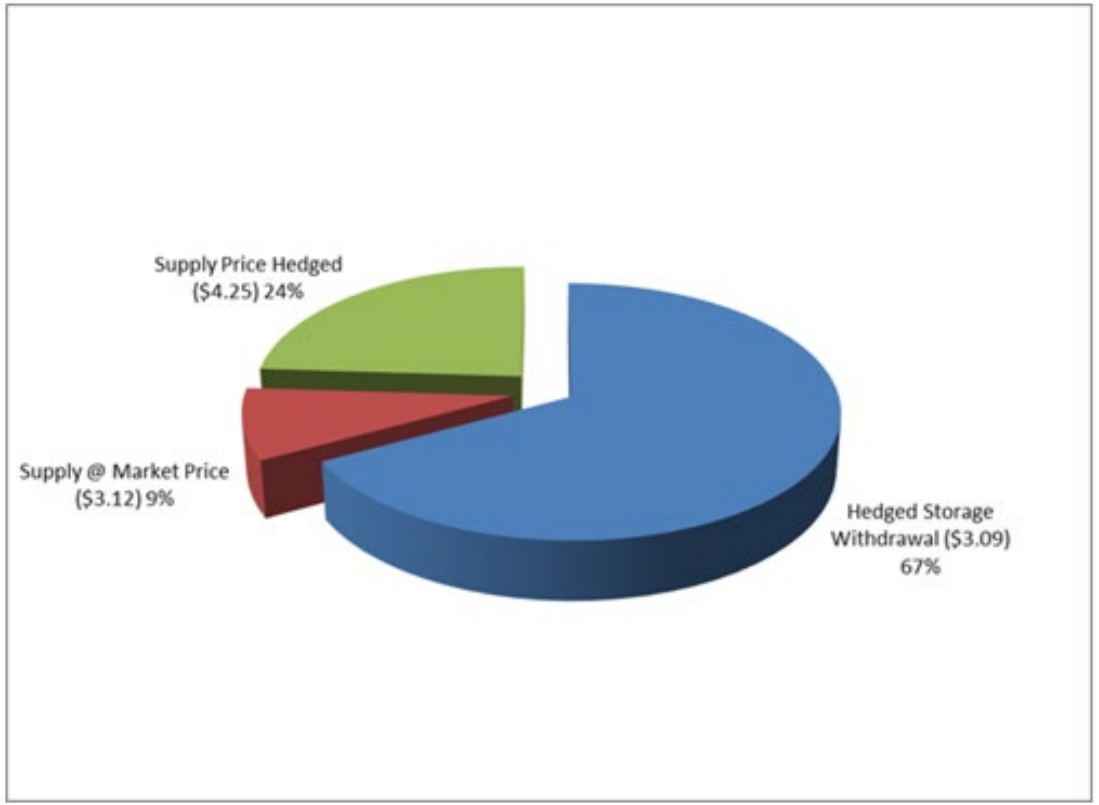
Market prices as of 9/20/2022
83% Price hedged at an avg of $4.40
Portfolio avg price = $5.33



AIC Gas Supply Strategy

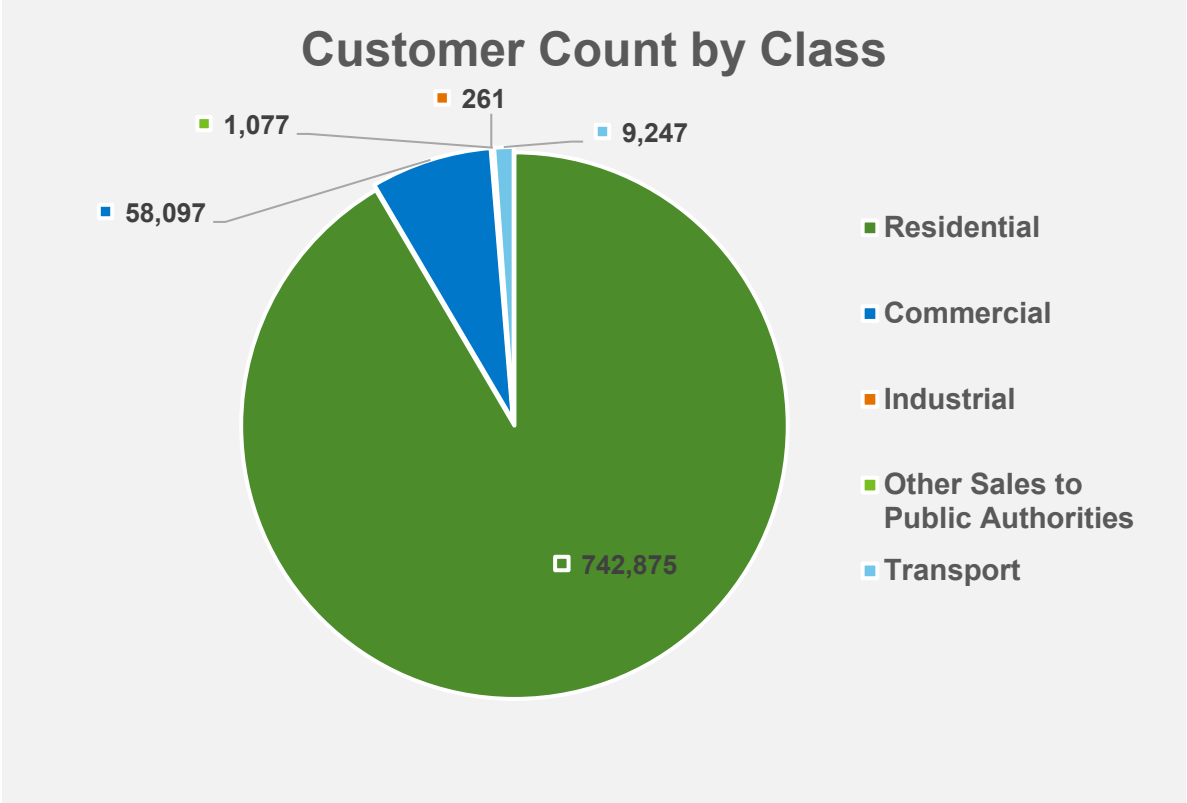
Gas Supply Position Entering 2023 – 2024 Winter

Market prices as of 9/27/2023
91% Price hedged at an avg of $3.40
Portfolio avg price = $3.35



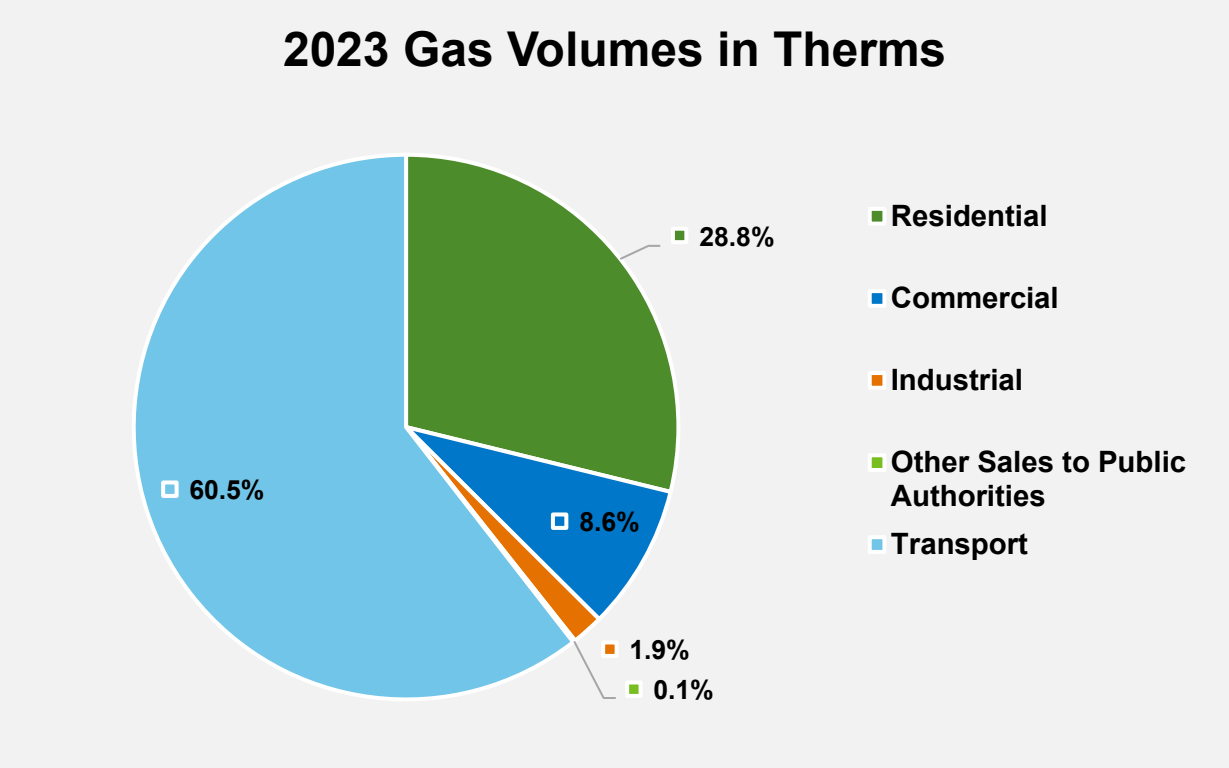
Ameren Illinois' Natural Gas Customers

Total Customer Count: 811,557



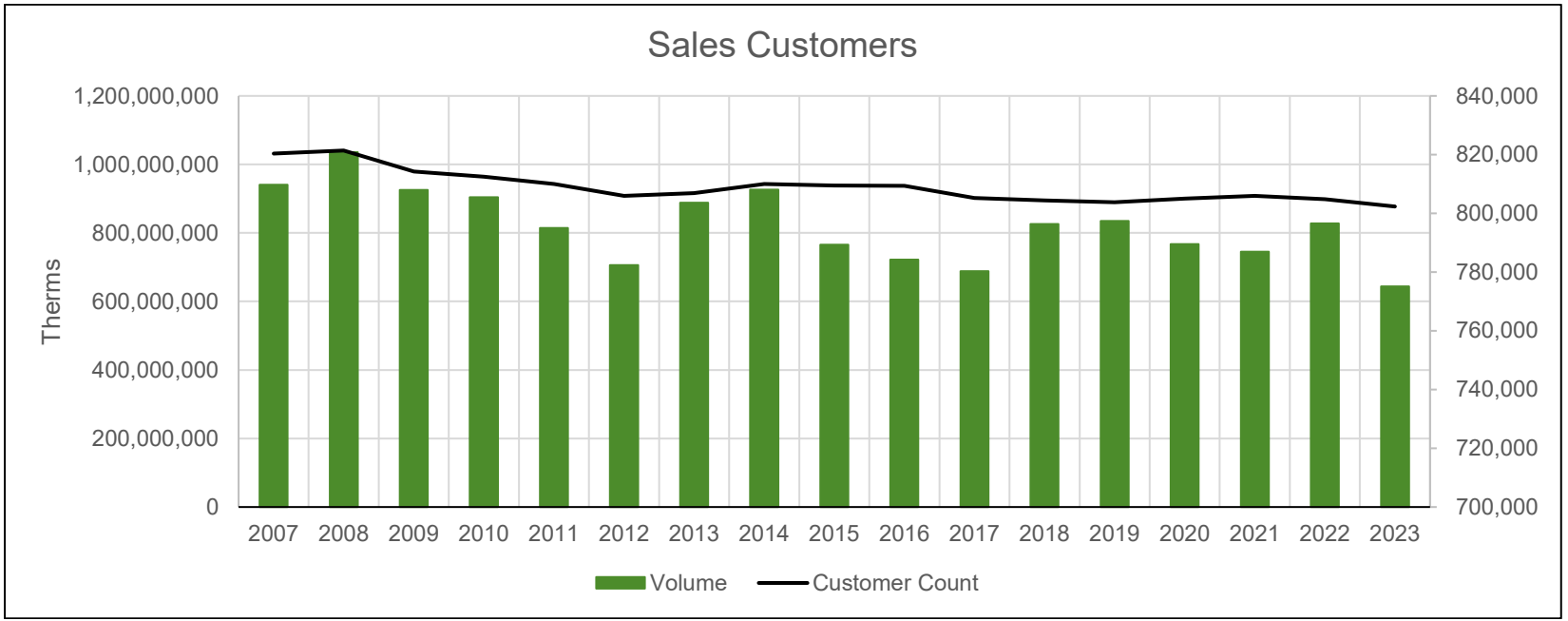
Ameren Illinois' Natural Gas Customers

Total Gas Volume: 1,630,440,829 Therms



Ameren Illinois' Natural Gas

Current System Conditions



Note: These figures are not weather normalized

Ameren Illinois' Natural Gas

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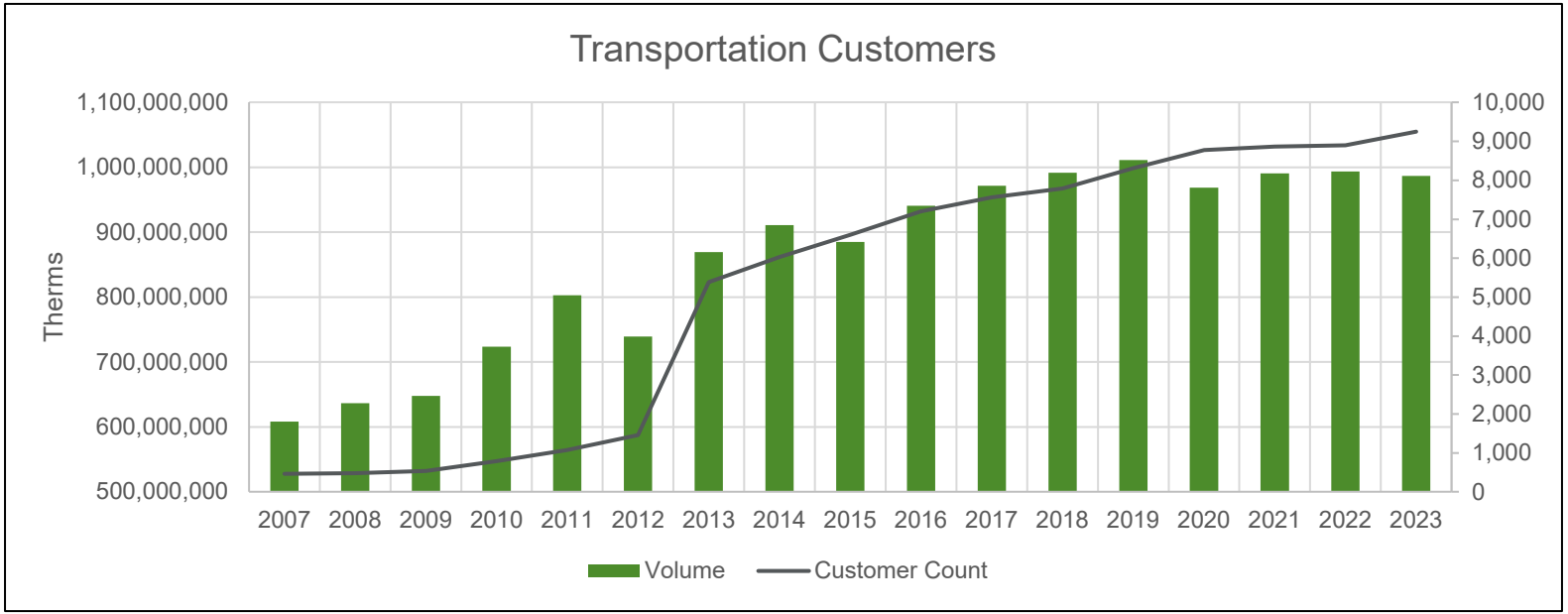

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Ameren Illinois' Natural Gas

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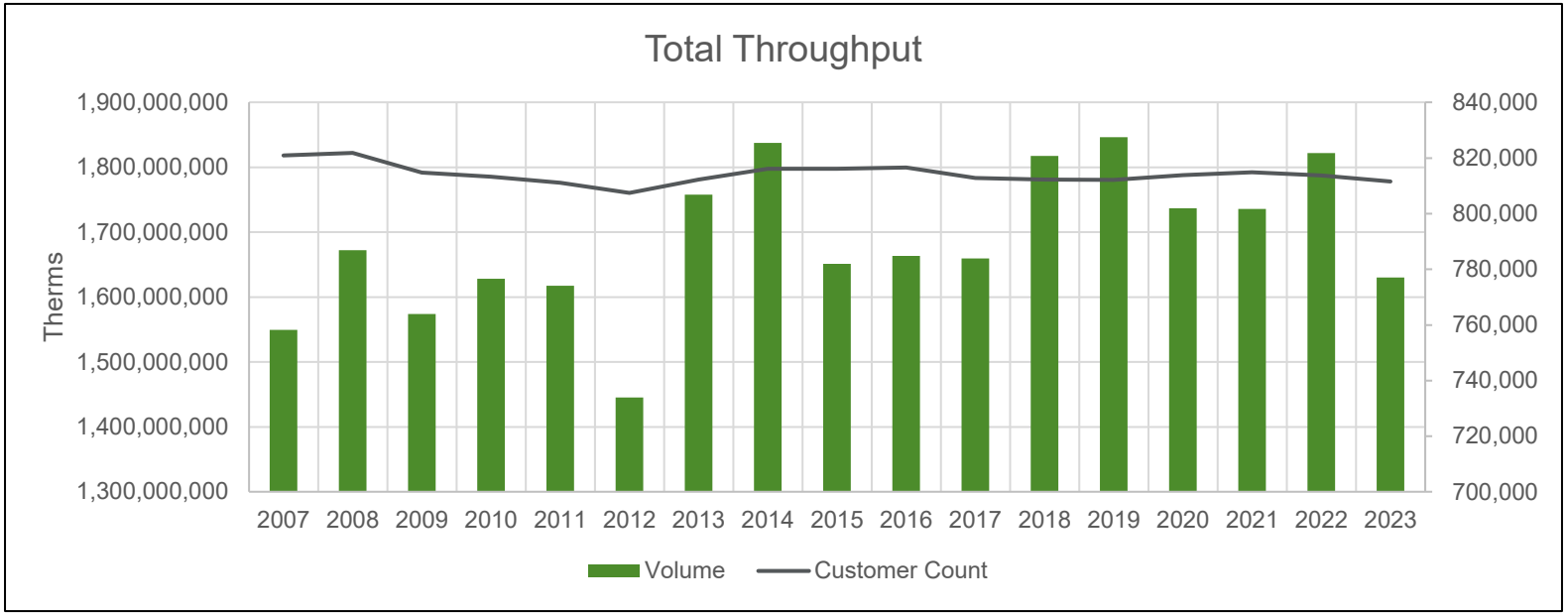

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Ameren Illinois' Natural Gas

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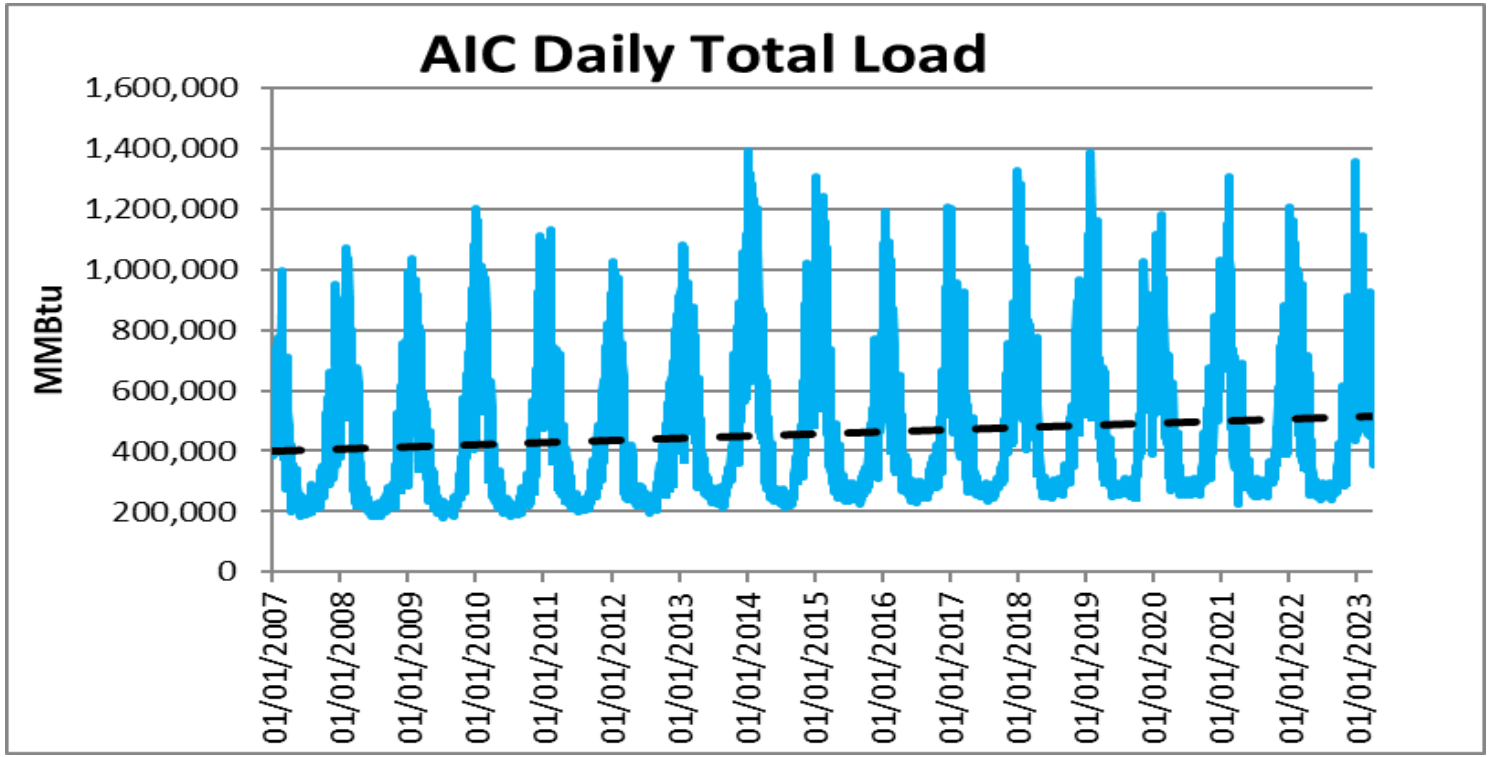


Ameren Illinois' Natural Gas

Peak-day Events

- Top 15 load days for Ameren Illinois gas through 2023.
- 9 of the 15 top days have occurred between 2019-2023.
- The frequency of heavy reliance on the gas system to provide critical energy during extreme weather events is increasing.
- The AIC Gas System is designed to provide gas to every customer on the coldest hour of the coldest day, not based on annual consumption.
  - Ranging from -19°F in the northern end of the territory to -10°F in the southern end of the territory.

DAY	Total Daily Load (MMBtu)
1/6/2014	1,390,757
1/30/2019	1,386,130
12/23/2022	1,359,590
1/14/2024	1,326,994
1/1/2018	1,325,991
1/23/2014	1,316,356
2/14/2021	1,307,898
2/15/2021	1,307,135
1/7/2015	1,306,250
1/29/2019	1,304,147
12/22/2022	1,292,336
1/16/2018	1,282,885
1/27/2014	1,281,504
12/31/2017	1,265,978
2/13/2021	1,260,057

Gas Pipeline Safety Regulations

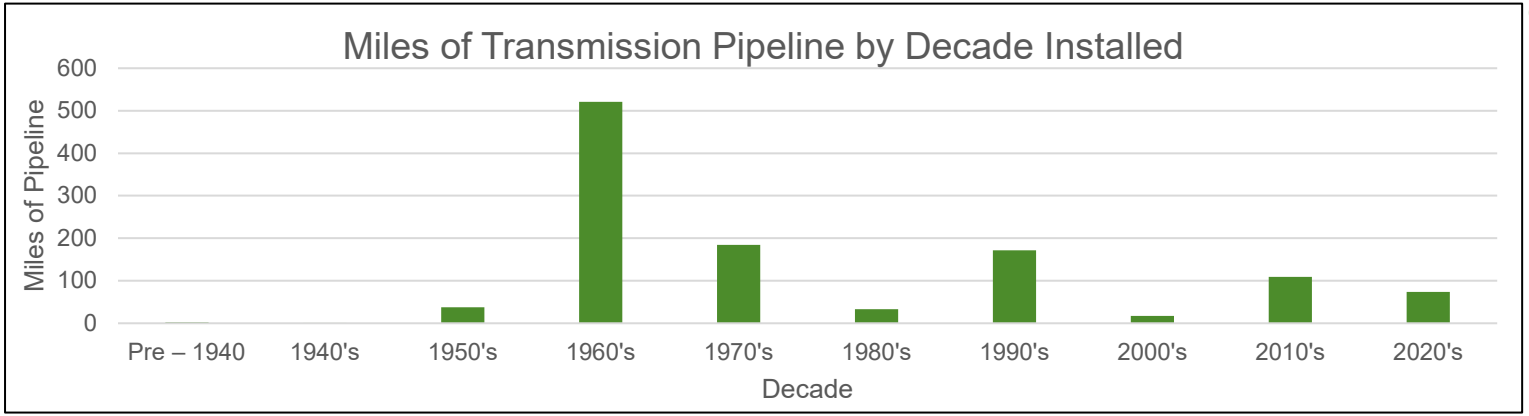
- Natural gas pipeline system is governed by the U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration (PHMSA)

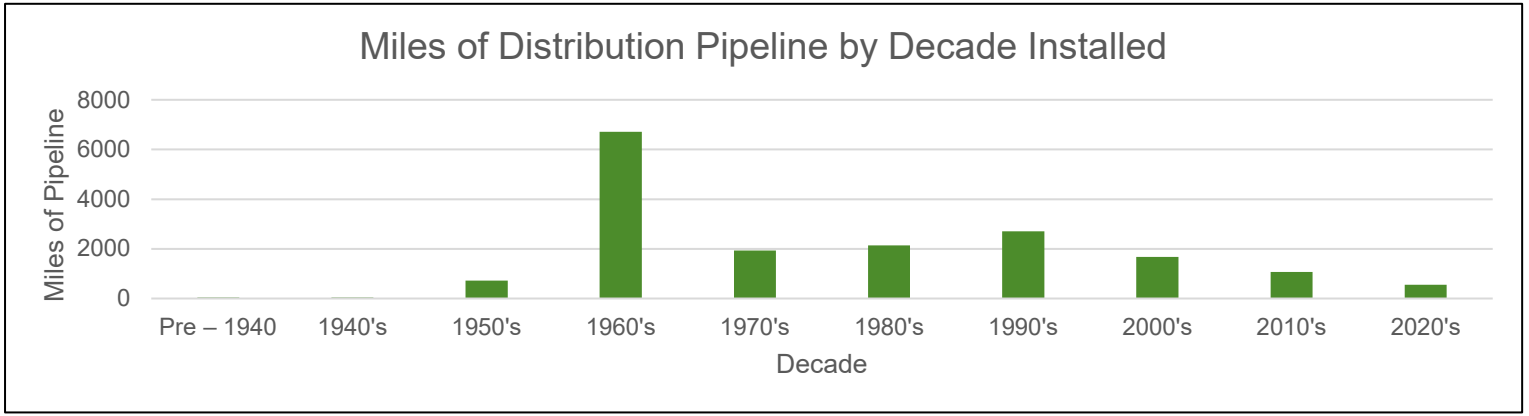
- The Illinois Commerce Commission Gas Pipeline Safety Program acts on behalf of PHMSA in Illinois enforcing Part 192 of the Code of Federal Regulations

Gas Pipeline Safety Regulations

- Code of Federal Regulations

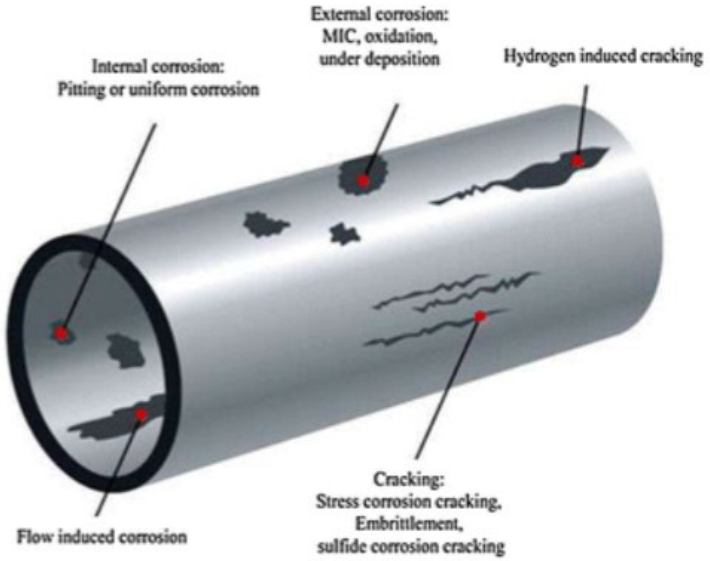
	Part / Section
▼ **Title 49** Transportation	
▼ **Subtitle B** Other Regulations Relating to Transportation	100 – 1699
▼ **Chapter I** Pipeline and Hazardous Materials Safety Administration, Department of Transportation	100 – 199
▼ **Subchapter D** Pipeline Safety	186 – 199
▼ **Part 192** Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards	192.1 – 192.1015
▶ **Subpart A** General	192.1 – 192.18
▶ **Subpart B** Materials	192.51 – 192.69
▶ **Subpart C** Pipe Design	192.101 – 192.127
▶ **Subpart D** Design of Pipeline Components	192.141 – 192.205
▶ **Subpart E** Welding of Steel in Pipelines	192.221 – 192.245
▶ **Subpart F** Joining of Materials Other Than by Welding	192.271 – 192.287
▶ **Subpart G** General Construction Requirements for Transmission Lines and Mains	192.301 – 192.329
▶ **Subpart H** Customer Meters, Service Regulators, and Service Lines	192.351 – 192.385
▶ **Subpart I** Requirements for Corrosion Control	192.451 – 192.493
▶ **Subpart J** Test Requirements	192.501 – 192.517
▶ **Subpart K** Uprating	192.551 – 192.557
▶ **Subpart L** Operations	192.601 – 192.636
▶ **Subpart M** Maintenance	192.701 – 192.756
▶ **Subpart N** Qualification of Pipeline Personnel	192.801 – 192.809
▶ **Subpart O** Gas Transmission Pipeline Integrity Management	192.901 – 192.951
▶ **Subpart P** Gas Distribution Pipeline Integrity Management (IM)	192.1001 – 192.1015


Miles of Transmission Pipeline by Decade Installed
Miles of Pipeline
600
500
400
300
200
100
0
Pre – 1940
1940's
1950's
1960's
1970's
1980's
1990's
2000's
2010's
2020's
Decade


Miles of Distribution Pipeline by Decade Installed
Miles of Pipeline
8000
6000
4000
2000
0
Pre – 1940
1940's
1950's
1960's
1970's
1980's
1990's
2000's
2010's
2020's
Decade

AIC Integrity Management

- Integrity Management: programs and plans AIC has developed to meet requirements of Title 49 of the Code of Federal Regulations at Part 192
  - Subpart O → Transmission Integrity Management Programs **(TIMP)**
  - Subpart P → Distribution Integrity Management Programs **(DIMP)**
- TIMP/DIMP Fundamental Components
  - Threat identification
  - Risk evaluation and mitigation
  - Monitor performance
  - Continuous Improvement
- Critical to ensuring pipeline safety



New Pipeline Safety Regulations

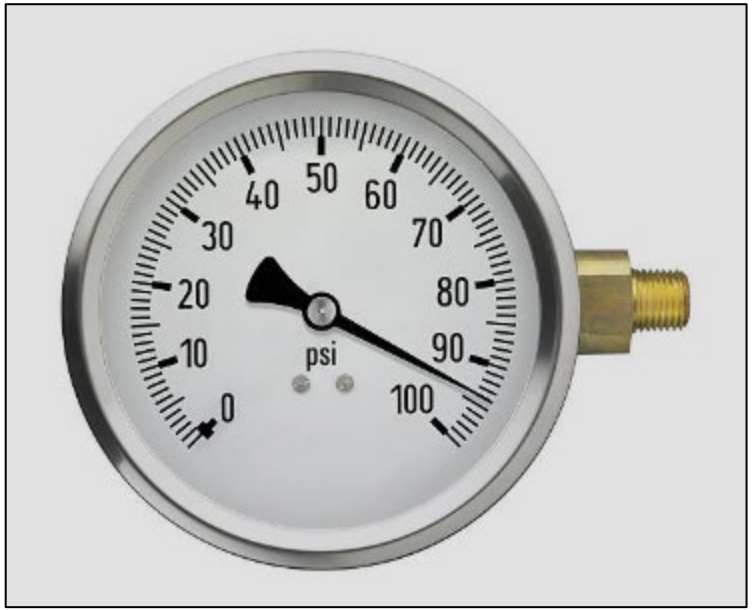
- 10/01/2019 – Safety of Gas Transmission Pipelines, MAOP Reconfirmation, Expansion of Assessment Requirements and other Related Amendments
- 04/08/2022 – Requirement of Valve Installation and Minimum Rupture Detection Standards
- 08/24/2022 – Repair Criteria, Integrity Management Improvements, Cathodic Protection, Management of Change, and Other Related Amendments

Maximum Allowable Operating Pressure (MAOP) Reconfirmation

- Traceable, Verifiable, and Complete pressure test records to support the MAOP for certain transmission pipelines
  - **July 3, 2028** – 50% Pipeline Mileage Complete
  - **July 2, 2035** – 100% Pipeline Mileage Complete

- 5 Methods to Reconfirm MAOP
  - Pipe Replacement
  - Hydrotest
  - Pressure Reduction
  - Engineering Critical Assessment
  - Alternative Technology

- 117 miles of AIC Transmission Pipelines subject to MAOP Reconfirmation
  - 73 miles reconfirmed



Transmission Investment

- 2024-2034 Plan for Compliance with 49 CFR § 192.624 filed with the ICC on 02/20/2024

Proposed Year	Transmission Route (TR)	192.624 Method	Sum of 624 Reconfirmed Miles
2024	TR 96/TR130	Hydrotest	4.26
	TR 97 (Phase 1)	Replacement	1.08
	TR 98	Pressure Reduction	0.66
	TR 99	Replacement	0.54
	TR 100	Pressure Reduction /Retirement	1.14
	TR 130 (W Rome)	Hydrotest	1.03
	TR 130 (Henry)	Pressure Reduction	0.55
	TR 130 (Sparland)	Hydrotest	0.53
2025	TR 2	Replacement	1.33
	TR 3	Replacement	0.95
	TR 7	Pressure Reduction	2.47
	TR 8	Replacement	1.75
	TR 10	Replacement	2.18
	TR 18 (Phase 1)	Replacement	0.62
	TR 32	Pressure Reduction	3.20
2026	TR 18 (Phase 2)	Replacement	1.65
	TR 24	Replacement	2.26
	TR 65	Replacement	1.59
	TR 95	Hydrotest	0.61
	TR 130 (Chillicothe)	Hydrotest	1.06
2027	TR 4 (Freeburg)	Hydrotest	0.03
	TR 9 (N)/TR30	Replacement	6.15
	TR 33	Pressure Reduction	0.74
	TR 72	Pressure Reduction	0.95
	TR 120	Replacement	0.91
2028	TR 4 (Fairview)	Replacement	5.63

Proposed Year	Transmission Route (TR)	192.624 Method	Sum of 624 Reconfirmed Miles
2029	TR 4(3)	TBD	3.89
	TR 49	Replacement	2.36
	TR 97 (Phase 2)	Replacement	2.18
2030	TR 1	TBD	0.17
	TR 26	TBD	0.04
	TR 30	Hydrotest	0.22
	TR 43	TBD	0.03
	TR 57	TBD	0.04
	TR 68	TBD	0.04
2031	TR 4	TBD	0.03
	TR 34	TBD	0.08
	TR 76	TBD	0.07
	TR 86	TBD	0.08
	TR 118	TBD	0.05
2032	TR 38	TBD	0.05
	TR 84	TBD	0.06
	TR 91	TBD	0.04
	TR 31	TBD	0.04
2033	TR 47	TBD	0.01
	TR 105	TBD	0.01
	TR 128	TBD	0.12
	TR 131	TBD	0.01
2034	TR 64	TBD	0.01
	TR 107	TBD	0.04
	TR 120	TBD	0.01
	TR 123	TBD	0.03

Distribution Investment

- Investment strategy is driven by annual Distribution Integrity Management Program risk evaluation
- Mechanically coupled steel pipe is prone to leakage and a top threat
- Replacement improves pipeline safety and decreases emissions
- Approximately 400 remaining miles

Coupled Steel Replacement Program	
YEAR	MILES
2015	29
2016	50
2017	51
2018	43
2019	36
2020	63
2021	70
2022	64
2023	65
2024	8

We'll wrap today's session with some time for Q&A

Are there any questions or clarifications?

Ameren ILLINOIS


Ameren
ILLINOIS