LTGIP Stakeholder Workshop
Capital Planning and Gas Forecasting

October 17, 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*
  - *Gas System Overview and Regulations*
- Possible Upcoming Workshop Topics
  - *Gas Forecasting Continued*
  - *NPAs / Innovation levers*
  - *Impact Analysis of Preferred Portfolio*
    - *economics, equity, and environment*
- Next workshop scheduled for November 19th

Today we will provide an overview of the capital planning process and introduce gas forecasting methodologies.

Meeting objectives

A — Capital Planning Process

B — Integrity Management and Gas Operations Inputs

C — Gas Forecasting Methodology Introduction

Internal Capital Planning Process

Gas Operations & Engineering
Identify and propose projects

Gas Integrity Management
Assess TIMP & DIMP requirements to inform process

Gas Storage
Identify and propose projects

Asset, Investment & Risk Management
Assess proposed projects and review capital budget

Senior Management
Review and approve capital budget

Relevant Inputs:
- Risk mitigation strategy
- System Studies & Assessments
- Regulatory compliance & Safety Standards
- Customer Affordability
- Equity

Proposed Investment Benefits

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Ameren FOCUSED ENERGY. For life.

Leading the way to a secure energy future.

Strategic Goals

- Reliability
- Affordability
- Safety
- Customers & Community
- Co-Worker Engagement
- Sustainability
- Innovation

SAFETY

- Public Safety Risk
- Employee & Contractor Safety Risk
- Cybersecurity Risk

AFFORDABILITY

- Financial Risk
- Cost Savings
- Cost Avoidance
- Investment Cost
- Revenue Increase
- Public Property Risk
- Customer Cost Savings

CUSTOMERS & COMMUNITY

- Government & Community Relations Risk
- Regulatory Risk

SUSTAINABILITY

- Environmental Impact Risk
- Environmental Benefit
- Renewable Capacity

RELIABILITY

- Gas Distribution Reliability
- Gas Storage Reliability
- Electrical Reliability
- Electrical Capacity
- Gas Distribution Capacity
- Business Continuity Risk

CO-WORKERS

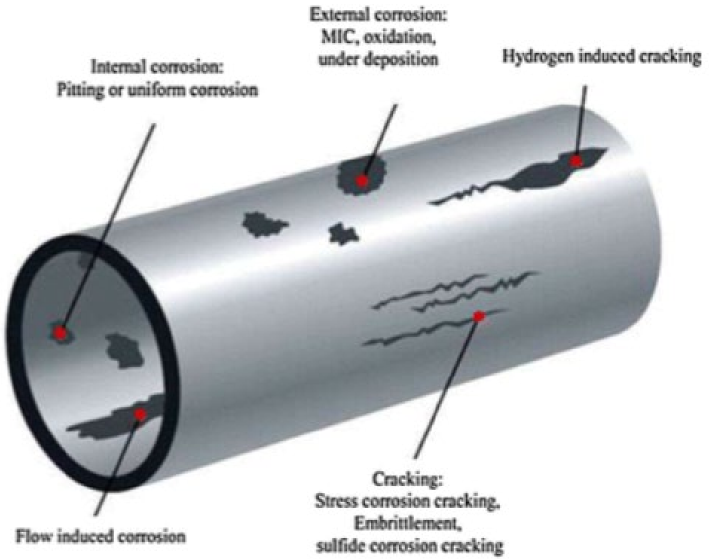
- People Risk
- Employee Productivity
- Employee Engagement
- Employee Attraction and Retention

Capital Planning & Budgeting Process

- Plan and Budget – multifaceted, iterative process
- Assessment of operational needs and risk
- Capital targets aligned with needs for system and support services
- Blankets & specific projects
- Focus on cost efficient alternatives to build a prudent portfolio mix
- Data-backed process combined with operational and leadership input
- Independent review of investments
- Utilizing the available resources by taking a regional approach based on utilizing labor resources and considering community impact

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



Integrity Management

Distribution Integrity Management Threats

- Corrosion
- Natural Forces
- Excavation Damage
- Other Outside Force Damage
- Material or Welds Failure
- Equipment Failure
- Incorrect Operations
- Other

Source: 49 CFR §192.1007

Transmission Integrity Management Threats

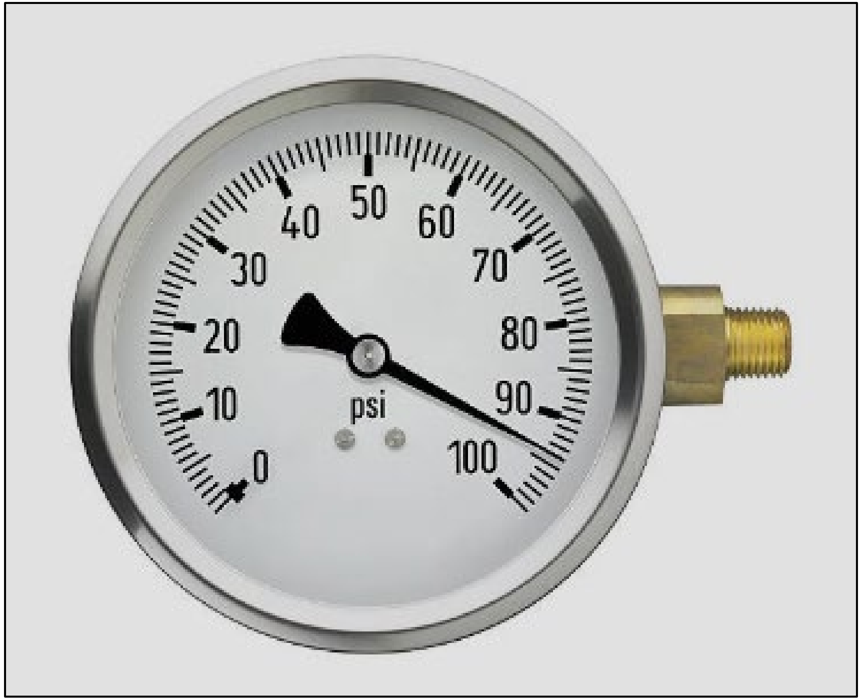
- Corrosion
- Weather and Outside Force
- 3rd Party Damage
- Cracking
- Manufacturing and Construction
- Equipment Defect
- Incorrect Operations
- Cyclic Fatigue

Source: 49 CFR §192.917

Maximum Allowable Operating Pressure (MAOP) Reconfirmation

Methods to Reconfirm MAOP

- Hydrotest + Material Properties Verification
- Pressure Reduction
- Pressure Reduction (Potential Impact Radius <150')
- Pipe Replacement
- Engineering Critical Assessment
- Alternative Technology



Transmission Investment

MAOP Reconfirmation

- 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

Gas Storage

- 10 Year View for Capital Planning of assets nearing end of life
- Inspection Results, Obsolescence, Performance Monitoring, and Manufacturing Lead Times drive Capital Planning to provide seasonal and peak day availability
    - OEM Availability and Capabilities provide input
    - Operating Results and Maintenance Expense Data support project timing
- Gathering Line projects are planned based on inspection results and timetables to meet compliance expectations and/or coordination with other storage projects
- Capital Planning for existing wells is driven by compliance requirements, inspection results and the well risk model
- The Capital Planning process also evaluates well work using horizontal drilling techniques that provide greater gas delivery capabilities and reduced operating and maintenance expense

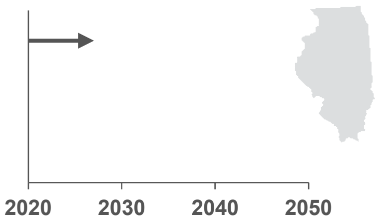
We are co-developing the 2045 forecast based on AIC's current process and integrating other sources to locally segment using guidance from operations

Methodology overview – Gas forecast

■ Current practice ■ Practice extended by LTGIP process

0 Annual volumetric gas forecast

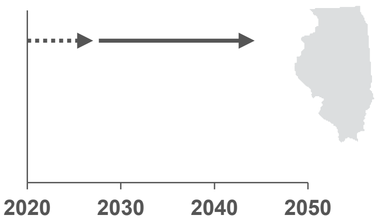
Develop annual 5-year forecast



- Conducted as a part of annual planning by customer class

1 Develop 20-year macro gas forecast

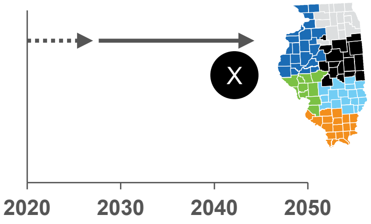
Develop 20-year forecast



- Develop 20-year forecast based on similar methodology as 5-year approach today
  - Consider economic/customer growth, climate change, etc.
  - Business-as-usual considerations for energy efficiency and economic dev.

2 Derive local system demand forecast

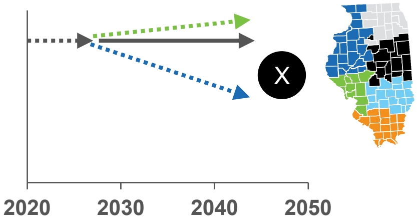
Derive top-down local demand based on system boundaries



- Identify and segment sub-systems' boundaries
- Assess local factors such as:
  - Physical system constraints
  - Demographics

3 Integrate scenarios

Assess each local segment's development across scenarios*



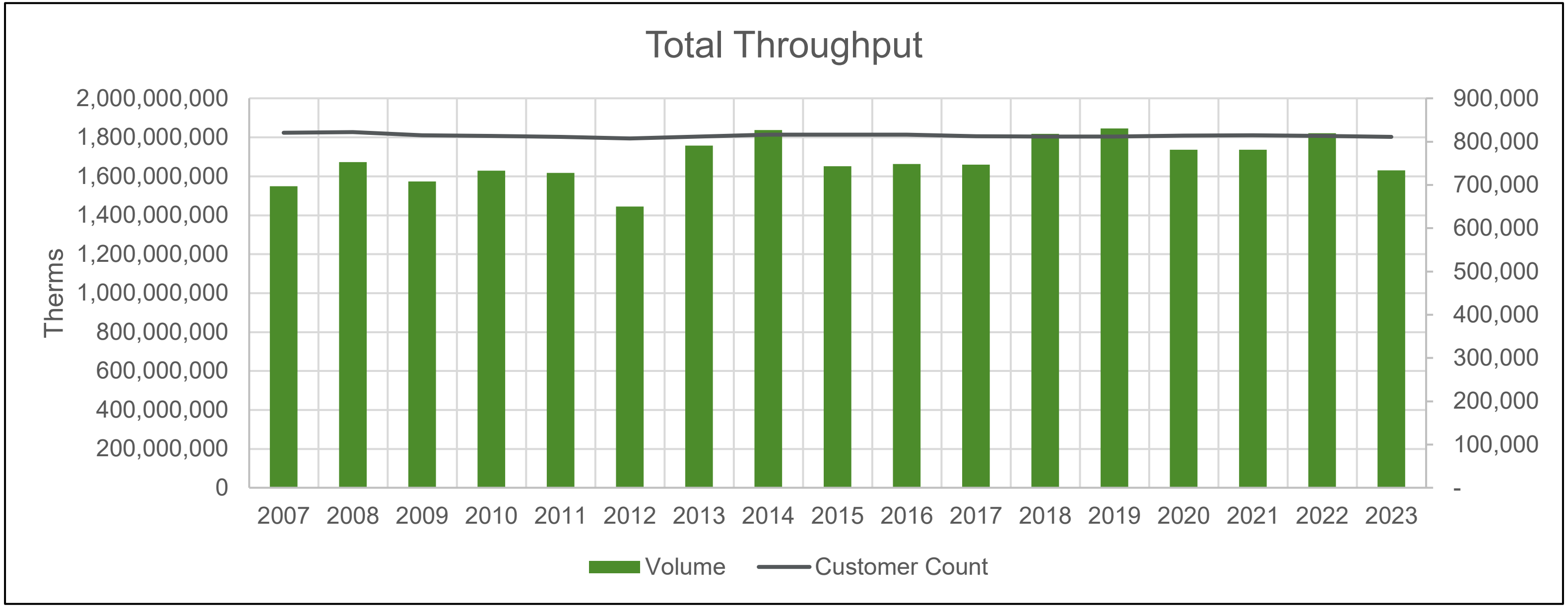
- Integrate scenarios at the semi-local level where possible linked to identifiable differences in :
  - Fuel augmentation
  - Load switching
  - End use efficiency
  - Utility demand

*This graphic is for illustration purposes only and does not represent an actual forecast

Source: AIC, Roland Berger

Ameren Illinois' Natural Gas

Current System Conditions



Note: These figures are not weather normalized

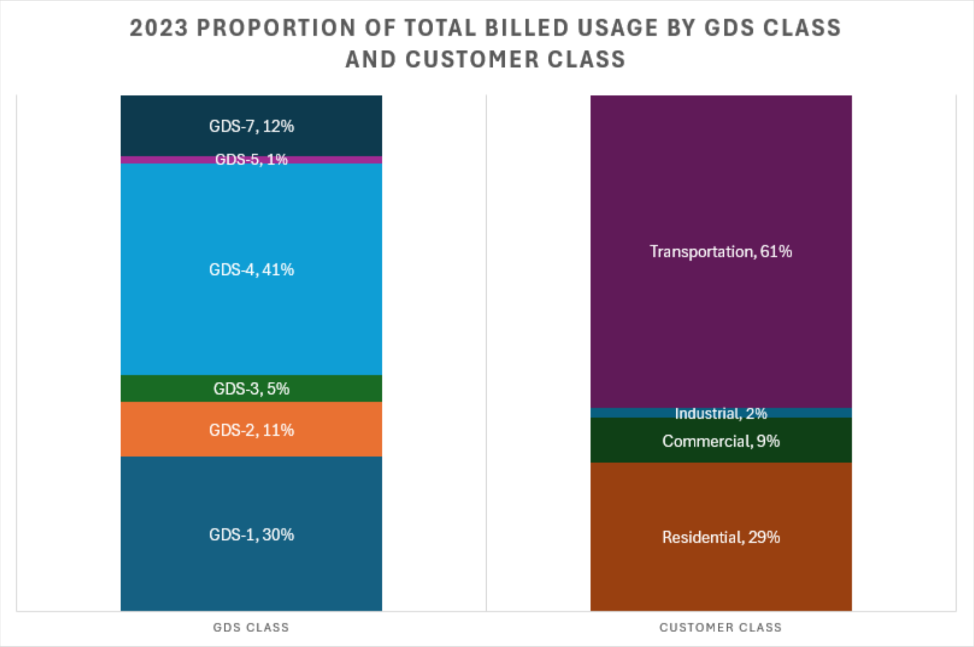
Data Sources

- Billed Gas Sales
- Moody's Economic Data
- U.S. Energy Information Administration
- National Oceanic and Atmospheric Administration (NOAA)
- Internal Business Partner Assumptions
  - Economic Development
  - Energy Efficiency
  - Ect.

Ameren Illinois Gas Forecast Methodology

Rate Class	Modeling Type
GDS-1 – RESIDENTIAL GAS DELIVERY SERVICE	SAE*
GDS-2 – SMALL GENERAL GAS DELIVERY SERVICE	SAE*
GDS-3 – INTERMEDIATE GENERAL GAS DELIVERY SERVICE	Econometric
GDS-4 – LARGE GENERAL GAS DELIVERY SERVICE	Econometric
GDS-5 – SEASONAL GAS DELIVERY SERVICE	Average
GDS-6 – INADEQUATE CAPACITY DELIVERY SERVICE	Average
GDS-7 – SPECIAL CONTRACT GAS DELIVERY SERVICE	Average

*Statistially Adjusted End-Use



Model Types

Statistically Adjusted End-Use

- GDS 1 and GDS 2
- Use Per Customer = a + b1 × XHEATm + b2 × XOTHERm + εm*
- *XHEAT* is the combination of:
  - Heating degree days
  - Saturation, and operating efficiencies, and price effects of heating equipment
  - Thermal integrity, footage of homes, average household size, and household income (residential only)
- *XOTHER* is the combination of:
  - Saturation, Efficiency and Price effect for equipment categories such water heater, stove, dryer etc.

Use x Customer Counts = Forecasted Volumes

*This is the main model structure. Some models have dummy variables to eliminate random effects such as seasonality and bad data.

Econometric

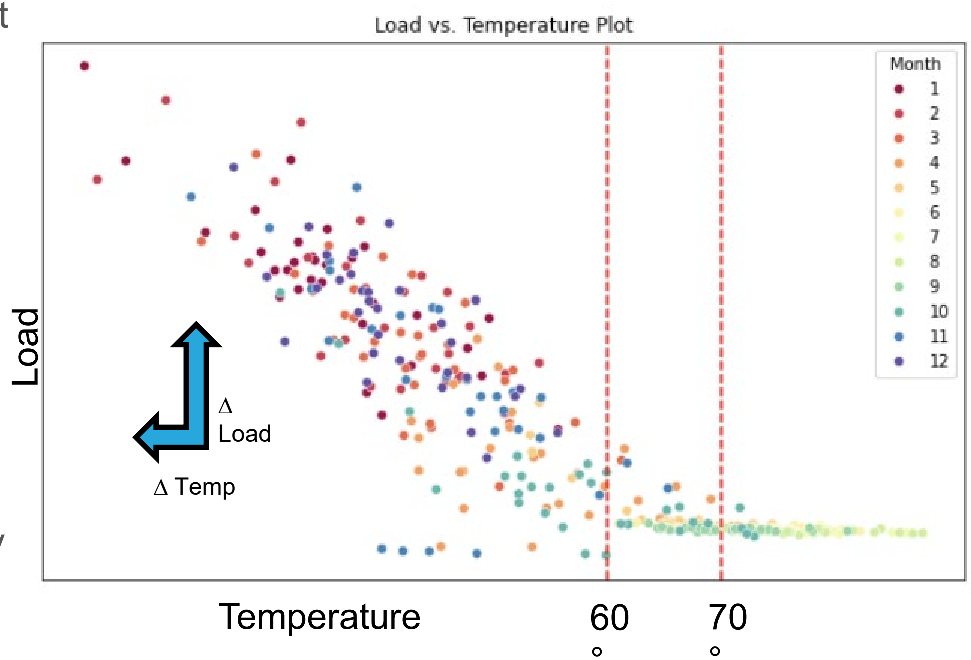
- GDS-3 and GDS-4
- Total_Use = a + b1 × HDDm + b2 × EconomicVariablesm + εm **
- Economic Variables* are the different combination of:
  - GDP
  - Manufacturing
  - Healthcare
  - Education
  - ect

*Economic variables used in econometric models differ by each Gas Delivery Service Class

**This is the main model structure. Some models have dummy variables to eliminate random effects such as seasonality.

Constructing WN Models

- Geographic diversity of the utility's footprint
- Ameren uses rolling 10 Year weighted average temperature
- Consumer's response to weather is not a linear function
- Not all customer segments behave same
- Weather response depends on seasonality
  - E.g.: An 60 degree day in winter will have more usage than a 60 degree day in September



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

Are there any questions or clarifications?

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Appendix: MAOP Reconfirmation Method Evaluation Flow Chart

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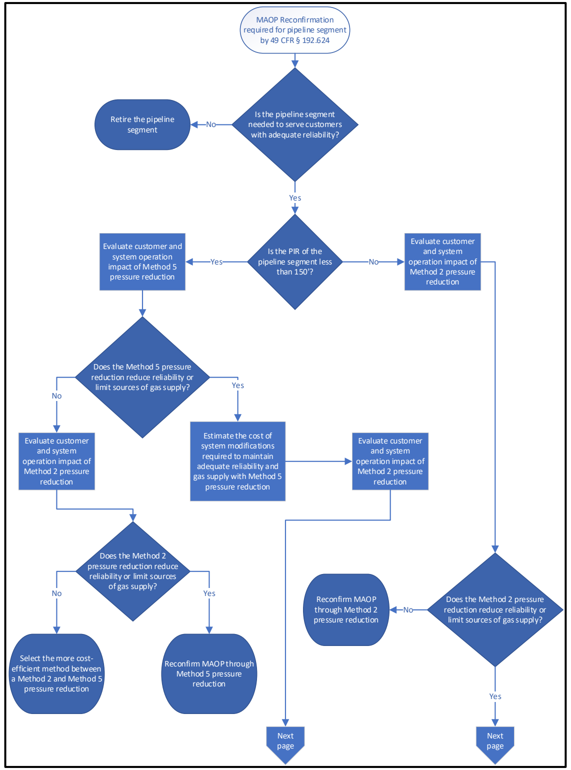

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