NARUC
National Association of Regulatory Utility Commissioners

NARUC TASK FORCE ON NATURAL GAS RESOURCE PLANNING

www.naruc.org/GasTaskForce

EXPERT LEARNING SERIES: Gas Integrated Resource Planning

January 31, 2024

Today's Agenda

Part 1: Expert speaker presentations *(recorded for website library)*

Moderator: Task Force Chair Fitz Johnson, Georgia Public Service Commission

- **Brad Cebulko**, Senior Manager, Strategen
- **Scott Weitzel**, VP of Regulatory and Governmental Affairs, Spire
- **Byron Harmon**, Regulatory Analyst, Washington Utilities and Transportation Commission

Part 2: Q&A with expert speakers *(not recorded)*

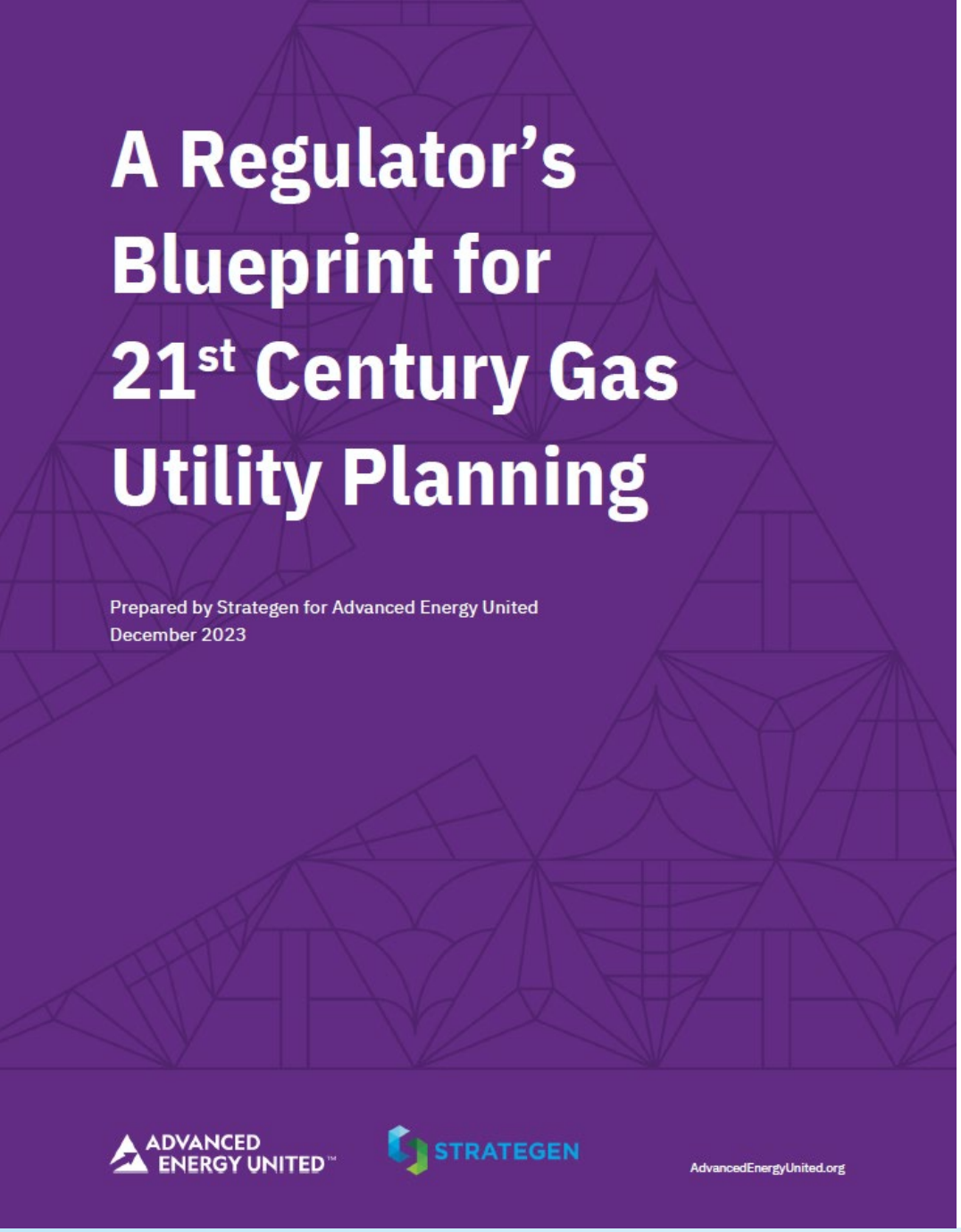
Part 3: Lessons learned from Task Force members *(not recorded)*

EXPERT SPEAKER PRESENTATIONS

STRATEGEN

A Regulator's Blueprint for 21st Century Gas Utility Planning

Brad Cebulko | January 31, 2024



Regulatory Practices Must Evolve with Challenges

This paper addresses the historic and renewed interest in gas planning

- Introduces gas utility planning
- Identifies key benefits
- Lays out the key components of a gas plan
- Discusses different types of gas plans

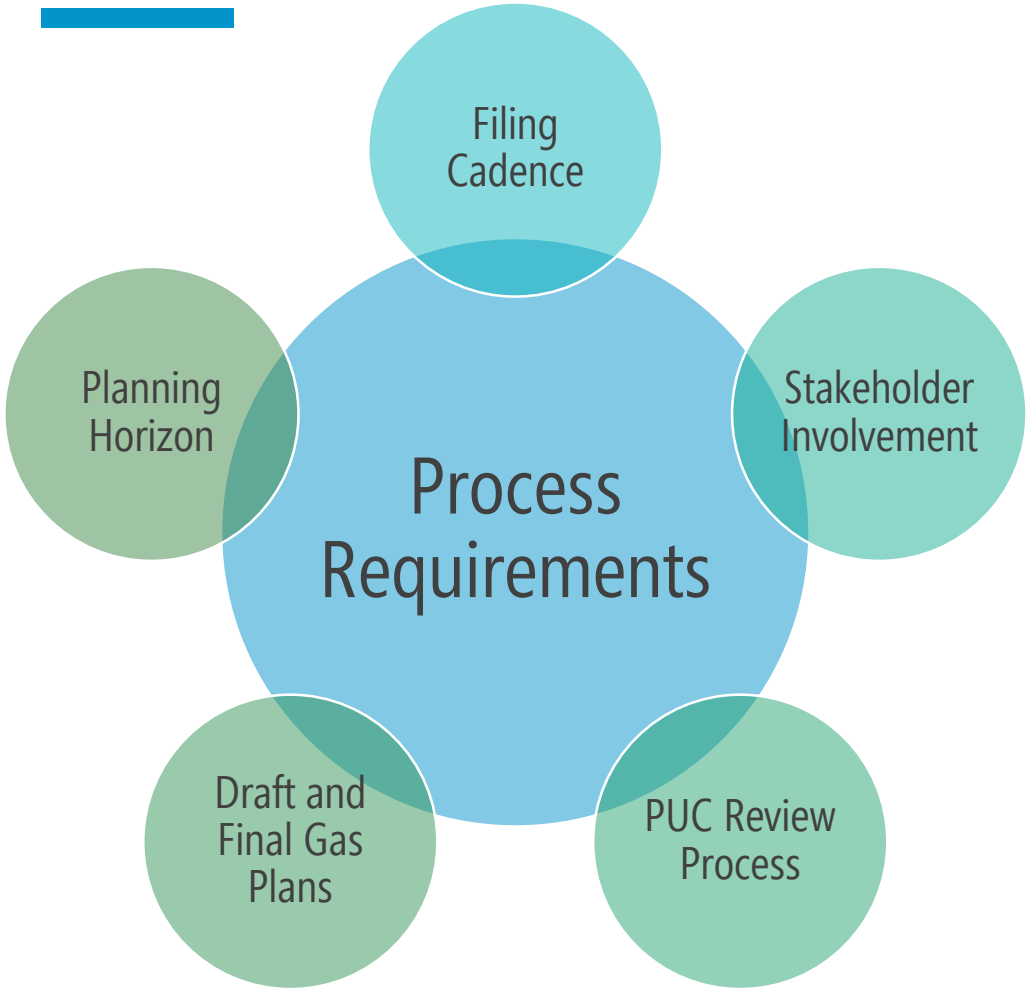
Purpose of Planning:

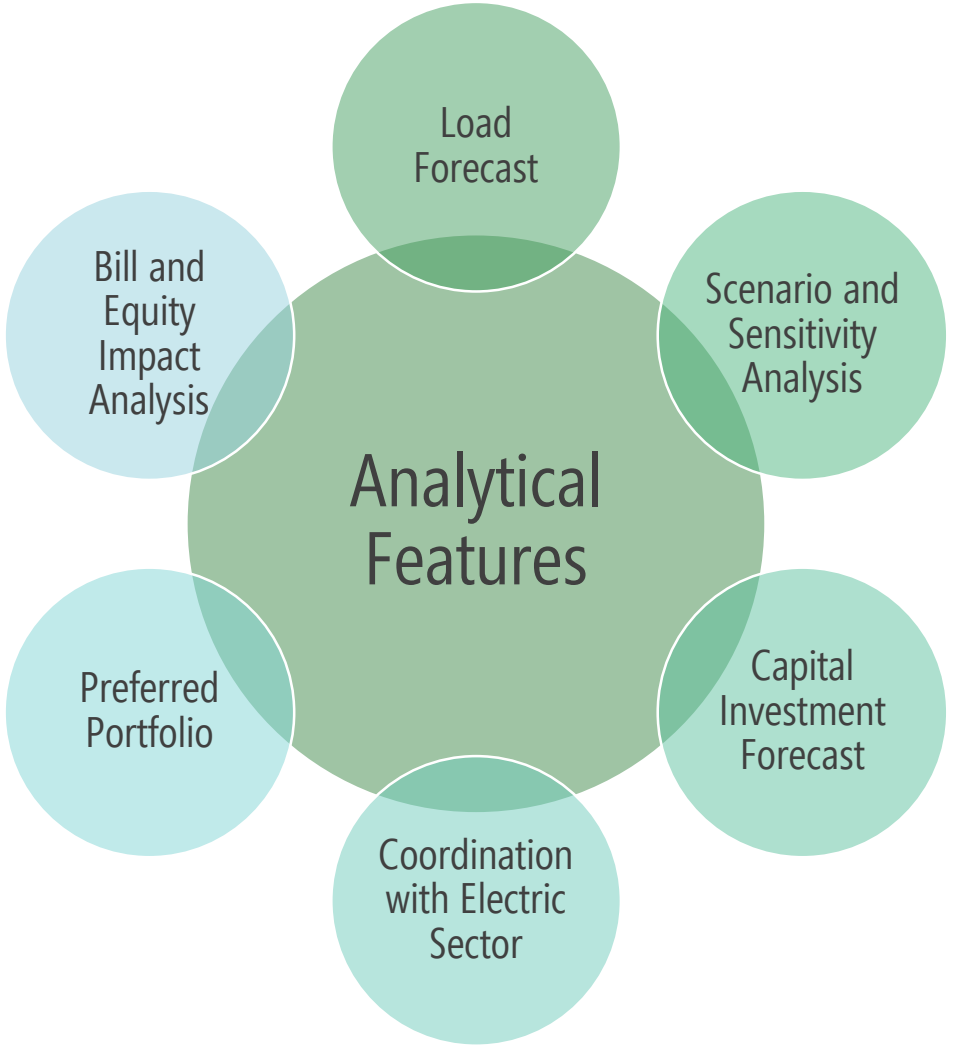
- Ensure that gas utility service is affordable, reliable, and safe
- Account for future uncertainty and understand the risk of various futures

A Regulator's Blueprint for 21st Century Gas Utility Planning

- Part 1: A Framework for Modern Gas System Planning
  - Benefits of Modern Gas Planning
  - Core Elements of Modern Gas Planning
  - Spotlight on:
    - Stakeholder Engagement
    - Evaluating RNG and H2 Proposal
    - Non-Pipeline Alternatives
    - Embedding equity
    - Mapping
- Part 2: An Overview and Comparison of Existing Gas Plans
  - New York's Long-Term Plans
  - Pacific Northwest IRPs
  - Consumers Energy Natural Gas Delivery Plan (Michigan)
  - Colorado Gas Infrastructure + Clean Heat Plan
  - British Columbia's Coordinated Planning

Part 1: A Framework for Modern Gas System Planning





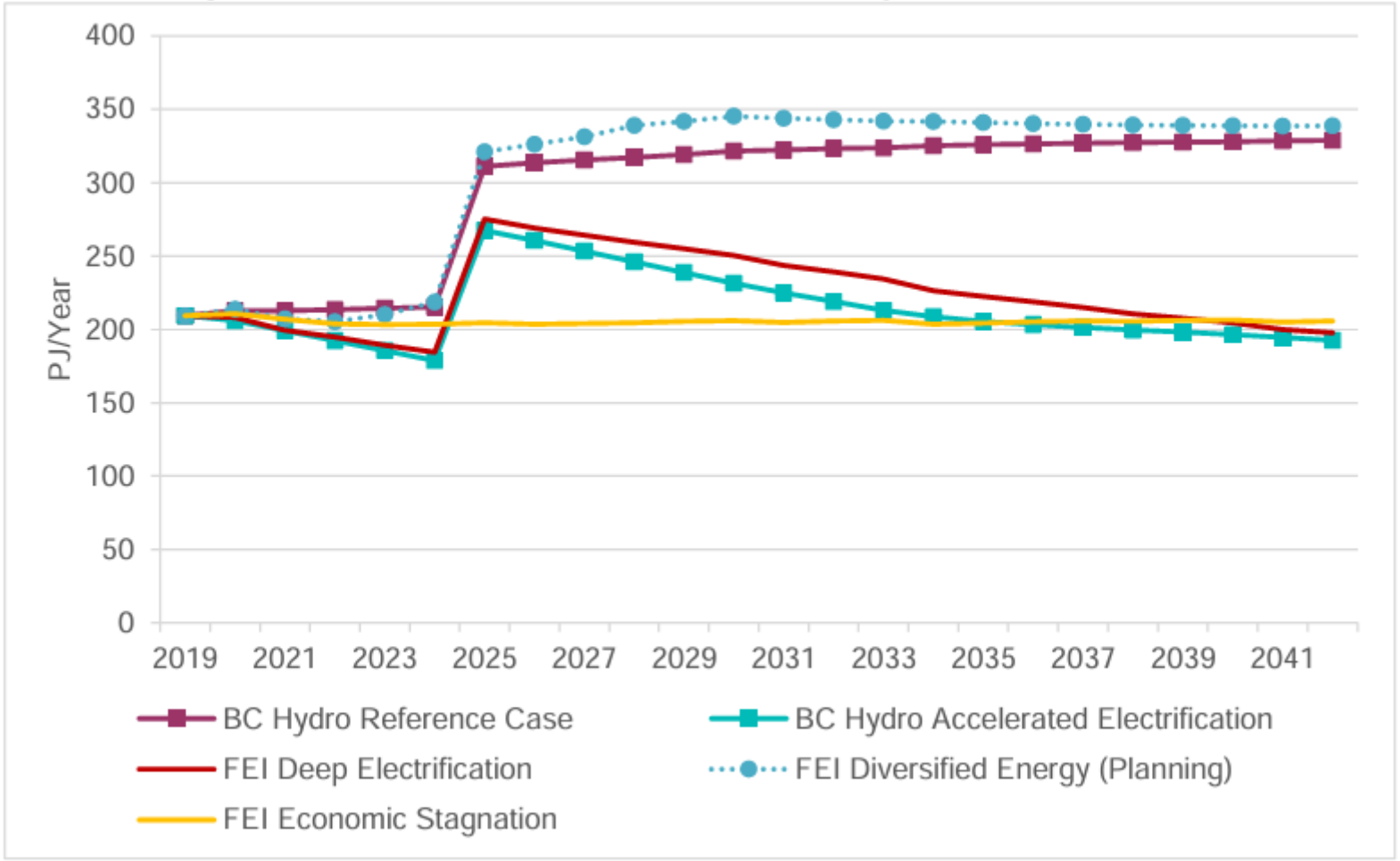
Part 2: An Overview and Comparison of Existing Gas Plans

	New York's Long-Term Plan	Pacific Northwest's IRP	Michigan Natural Gas Delivery Plan	Colorado GIP and Clean Heat Plan	BC's Coordinated Gas and Electric Planning
Process Features					
Filing Cadence	Every 3 years	Every 2 years	Annual	GIP: Every 2 years Clean Heat Plan: Every 4 years	Every 2 – 5 years
Planning Horizon	20 years	10+ years (WA)[105] 20+ years (OR)	10 years	GIP: 6 years Clean Heat Plan: 5 years	20 years

	New York's Long-Term Plan	Pacific Northwest's IRP	Michigan Natural Gas Delivery Plan	Colorado GIP and Clean Heat Plan	BC's Coordinated Gas and Electric Planning
Analytical Features					
Short-term action plan		2-4 years	Specific investments detailed	GIP: 3 years	4 years
Load Forecasting	√	√	√	√	√
Scenario and Sensitivity Analysis	√	√	√	√	√
Identification of Preferred Portfolio	√	√	√	√	√

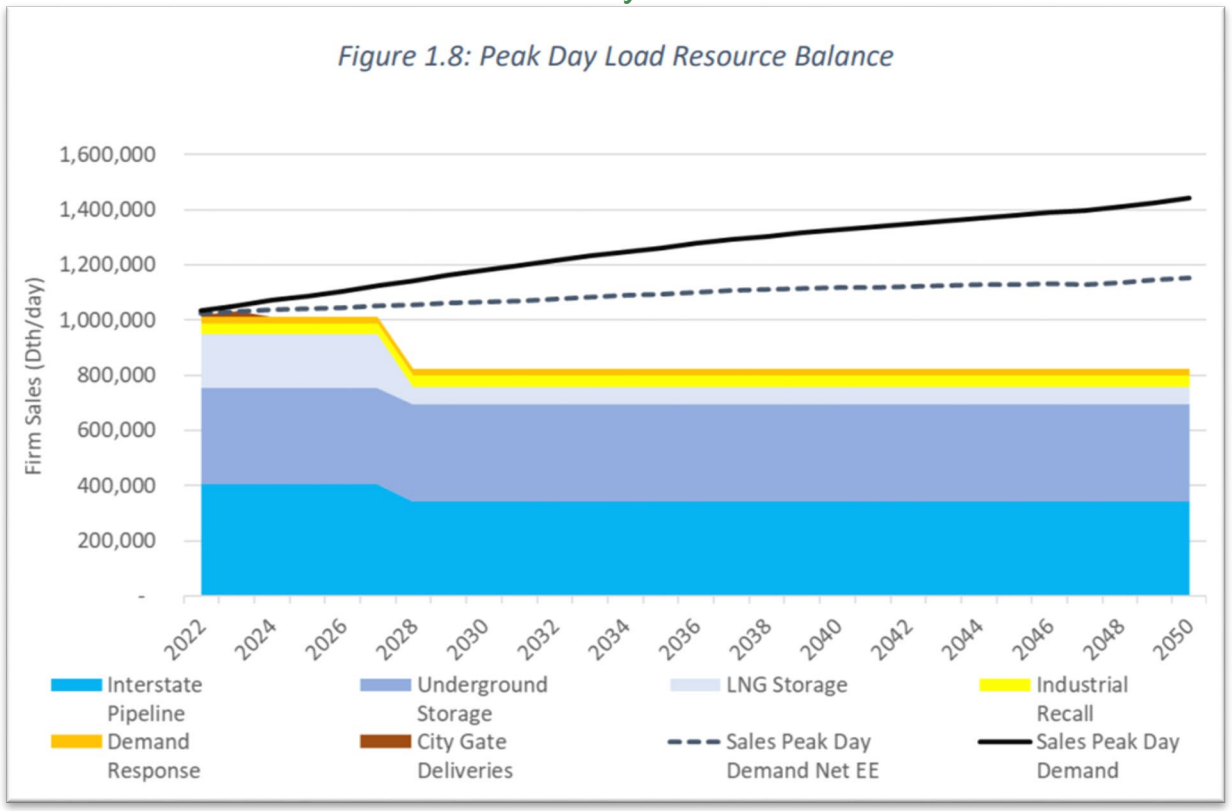
Fortis Gas Forecasted Annual Energy Demand Under Various Futures

Figure 1: Forecast of Total Annual Gas Demand by Scenario - All Sectors[2]

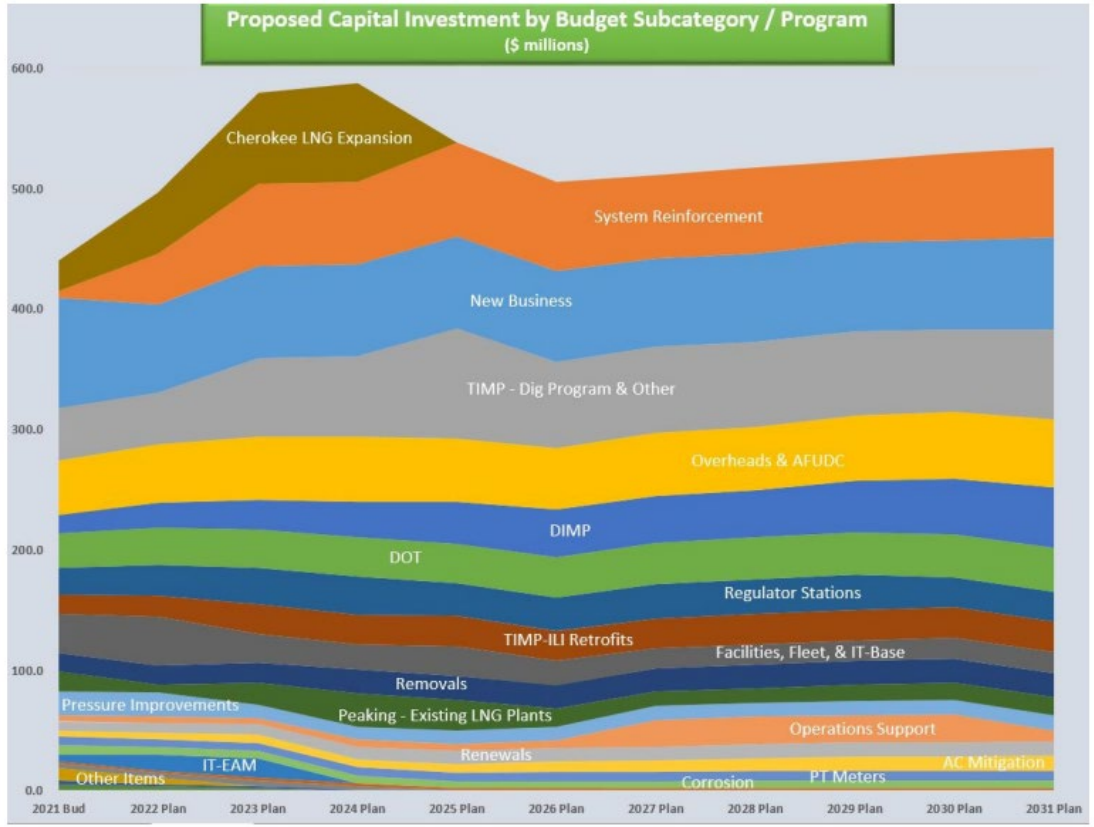


Gas Planning Should Look at Both Resources and Capital Investments

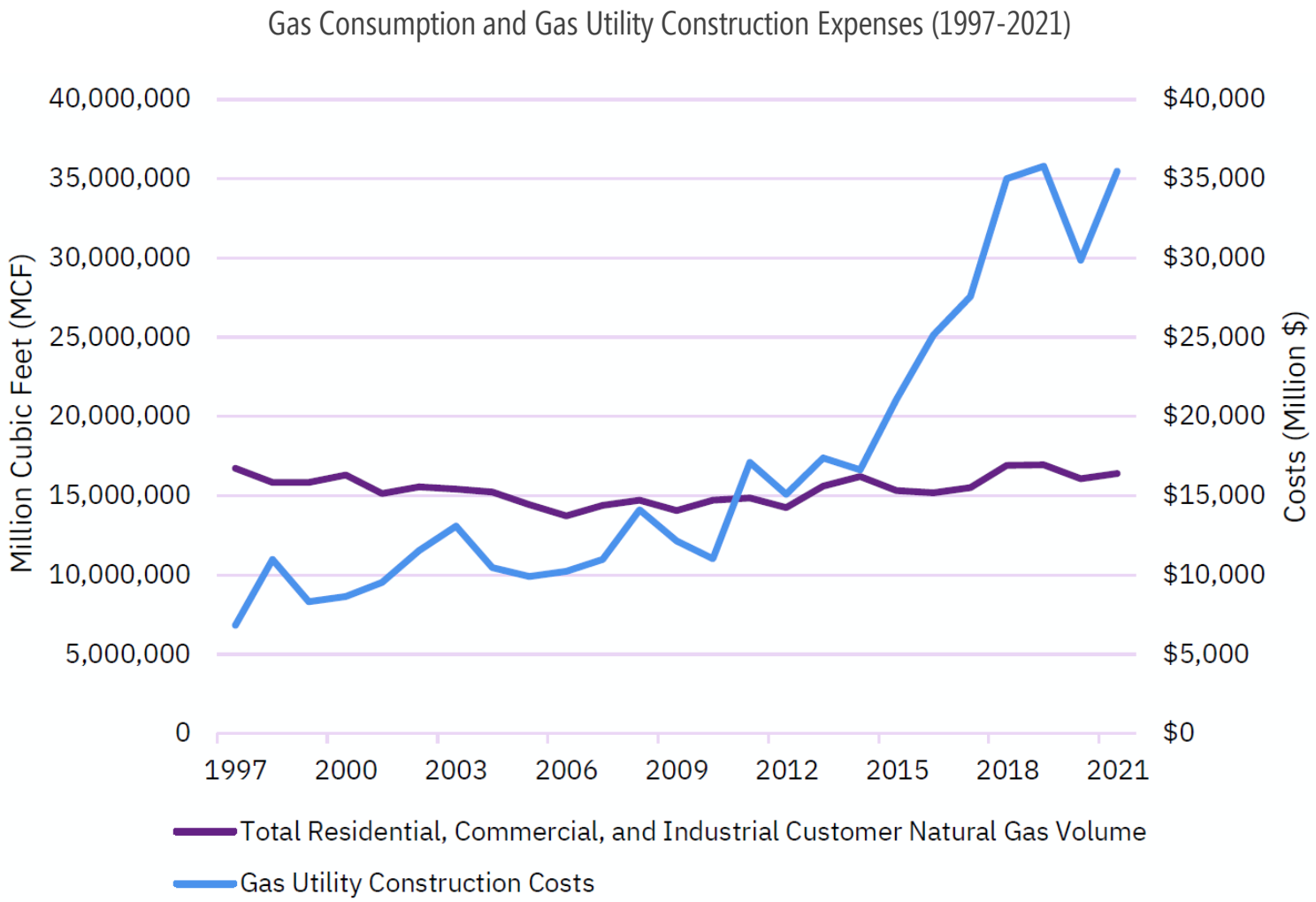
Pacific Northwest Utility Resource Demand



Southeast Utility Capex Plan

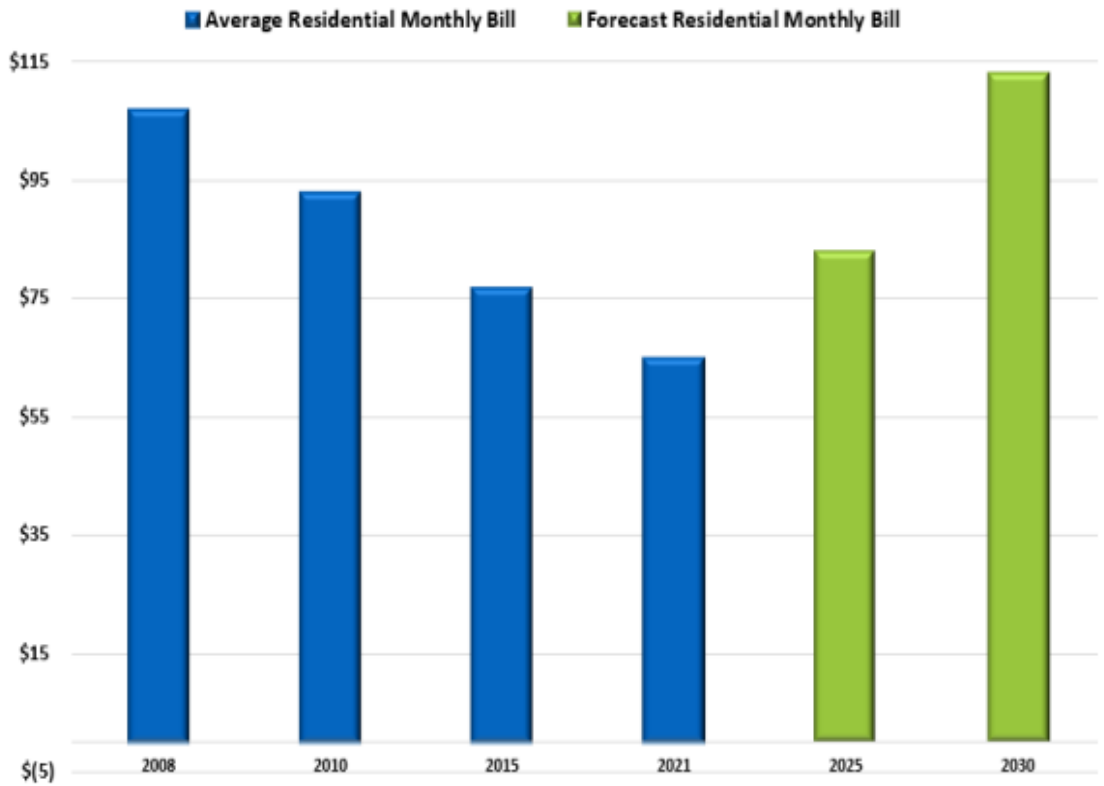


Gas Utility Capital Expenses Are Growing Faster Than Gas Demand



Ratepayers are Facing Rising Energy Burdens

Midwest Utility

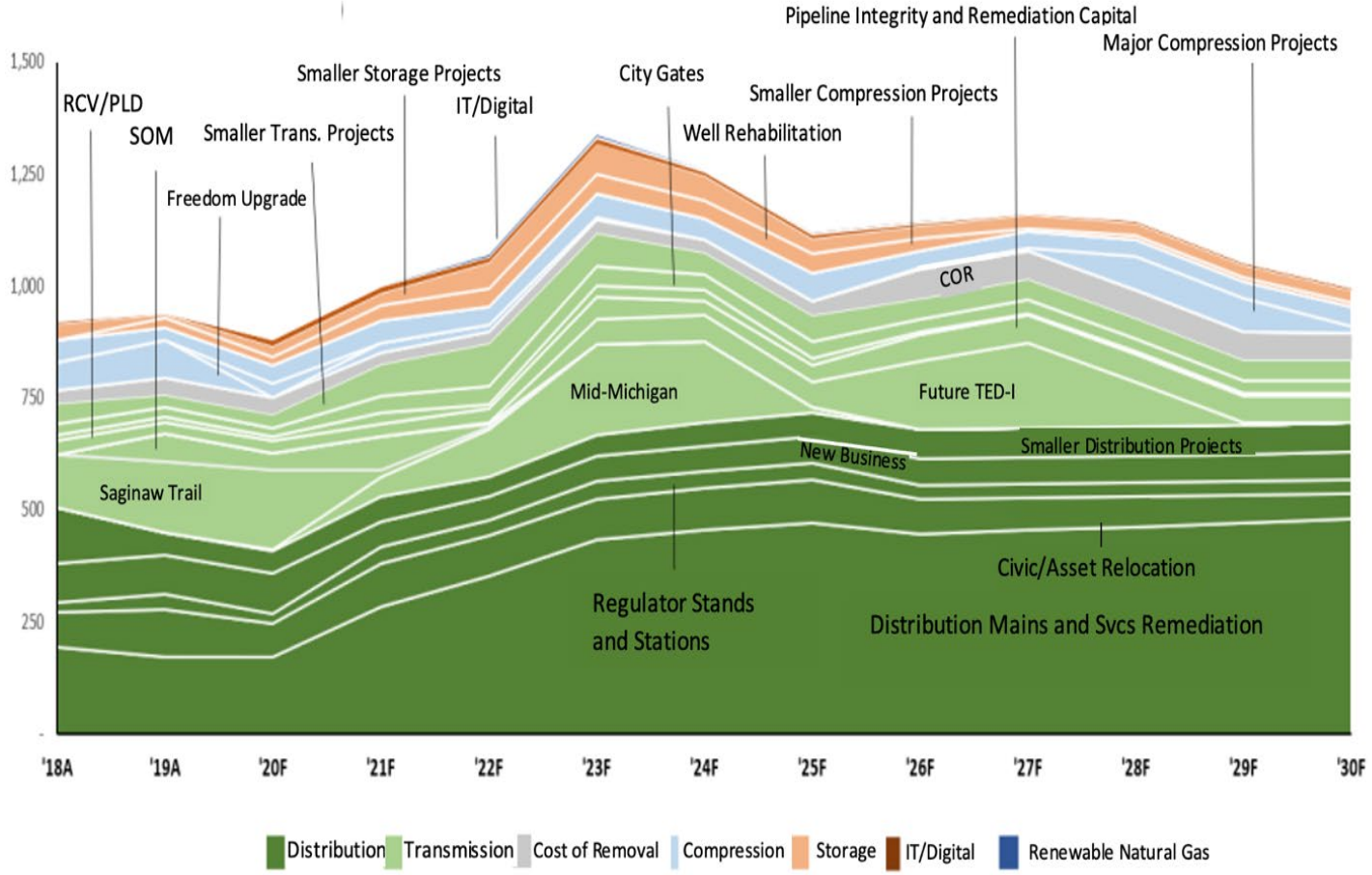


Southeast Utility

Bill Impacts ($ millions)	2022	2023	2024	
Annual Revenue Deficiency	61	54	49	
Annual Impact	30.27	26.60	23.96	
Monthly Impact	2.52	2.22	2.00	
				3yr Average
Non-Gas Impact	7.4%	6.0%	5.1%	6.2%
Total Bill Impact-Includes Est Gas Costs	3.7%	3.1%	2.7%	3.2%

Capital Forecasts Provides Transparency into Utility Spending

Midwest Utility Capex Plan



Types of questions that could be answered:

- Is the utility prioritizing high-risk asset replacements?
- Is the utility considering non-pipeline alternatives and other cost containment measures?
- Is the capex spending aligned with the demand forecast?
- Will investments enable the utility to meet state policy goals?

STRATEGEN

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NARUC Task Force On Natural Gas Resource Planning

Scott Weitzel

Vice President Regulatory and Governmental Affairs

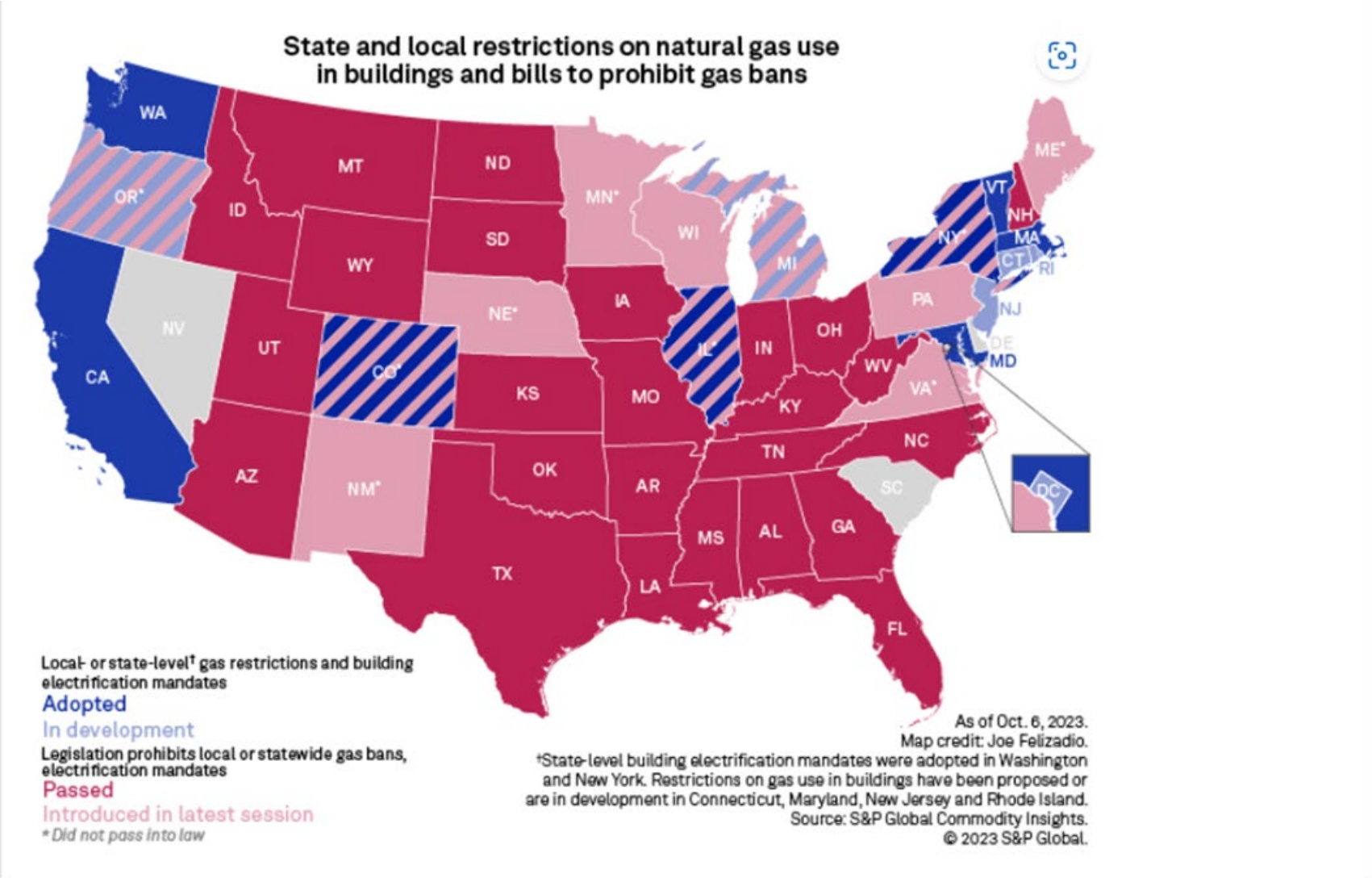
Spire

1-31-24

Agenda

- Utility background and national discussion
  - NARUC task force on natural gas resource planning
- The environment
  - Gas and electric
- The cost to customers
  - Gas and electric
- Reliability
  - Gas and electric
- Integrated Resource Plan (IRP)
  - Stakeholder engagement
  - Interstate pipelines and storage
  - Distribution system planning and investment
  - Customers, usage, and the environment

Utility Background and National Discussion



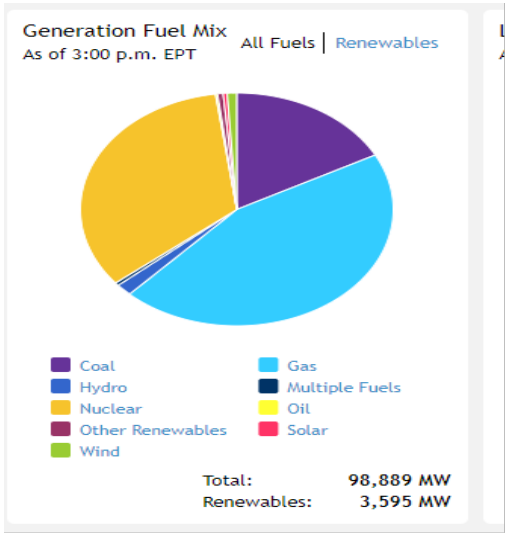
Utility Background and National Discussion

- Spire will file their first IRP in the summer of 2024.

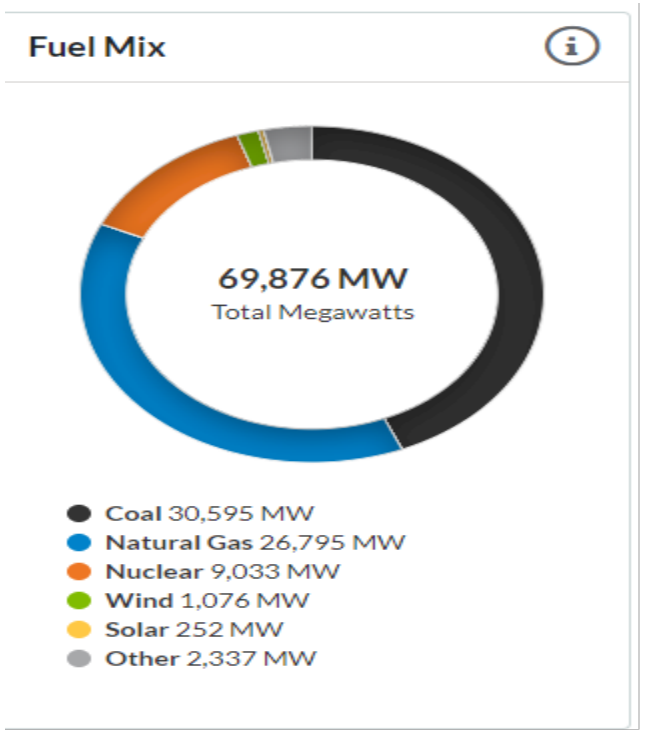
- We would like to address what we are hearing in the policy discussion and at NARUC in our IRP.
  - Overlap and connection to electric IRP's.
  - Actual environmental impact compared to alternatives (electrics)
  - Cost to customers
  - Reliability

The Environment
Recent generation mix 1-25-24

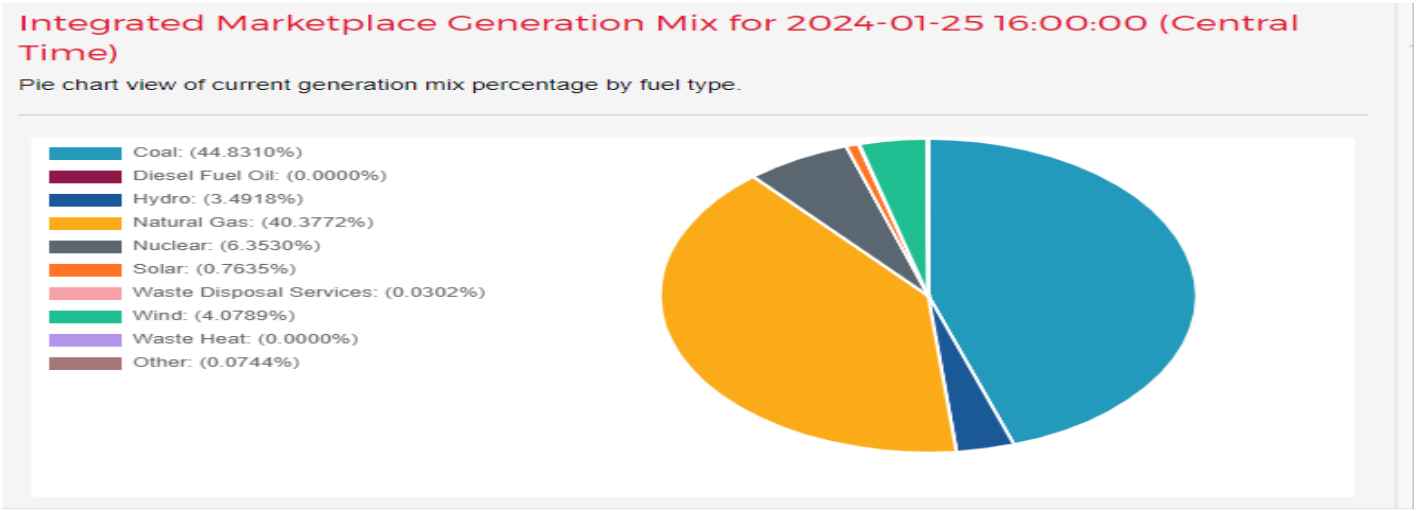
PJM



MISO

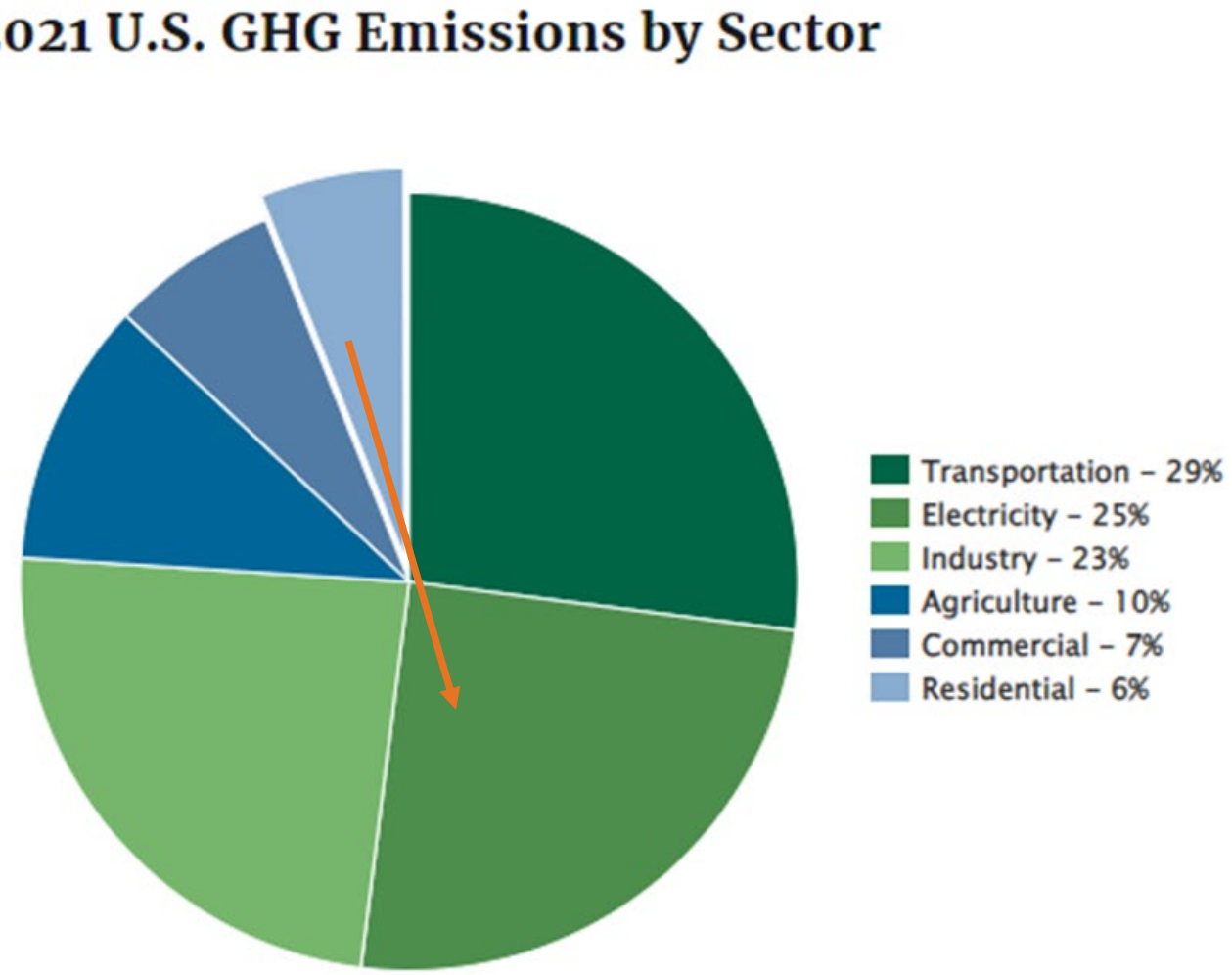


SPP

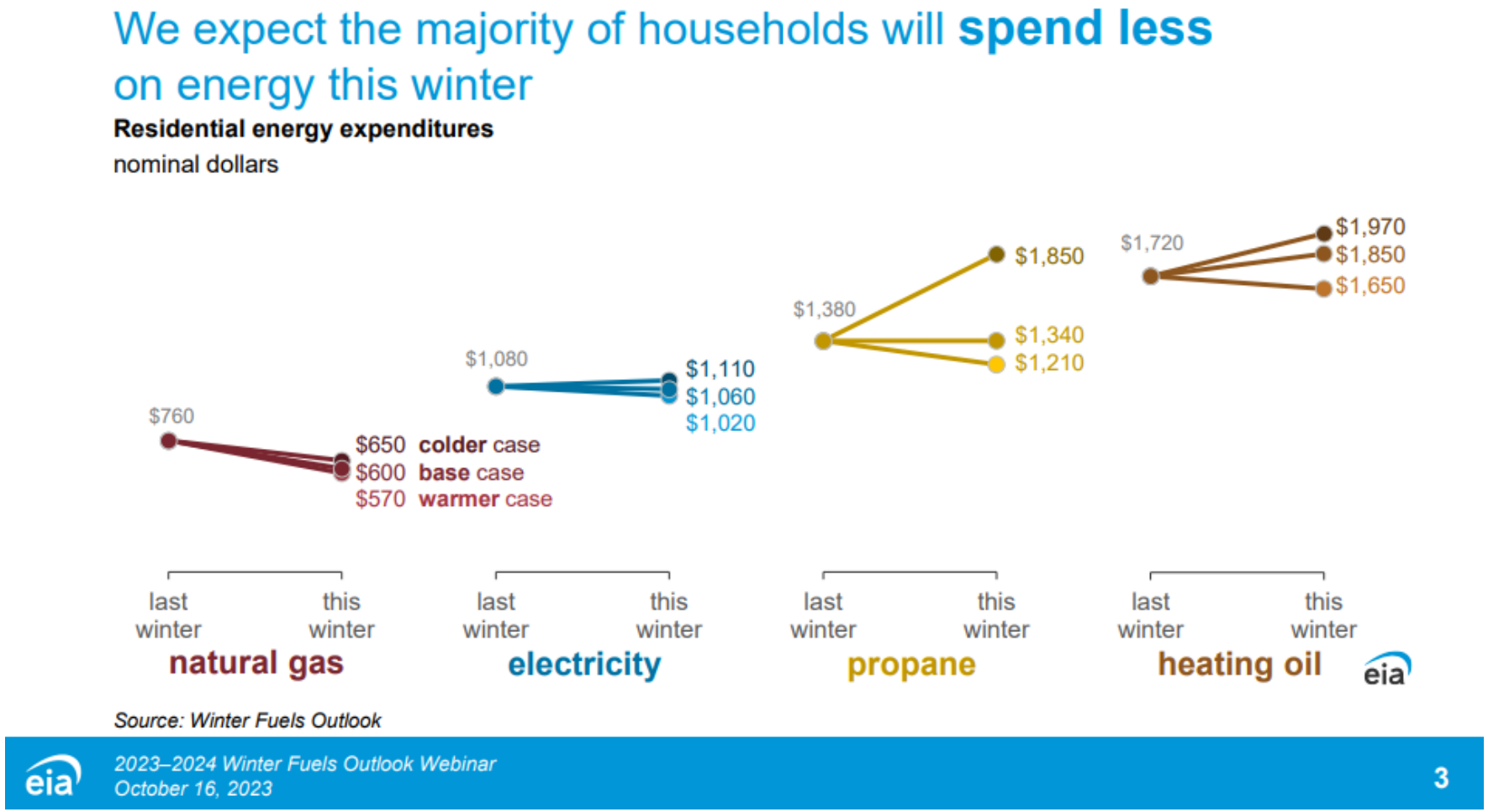


2021 U.S. GHG Emissions by sector

https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions

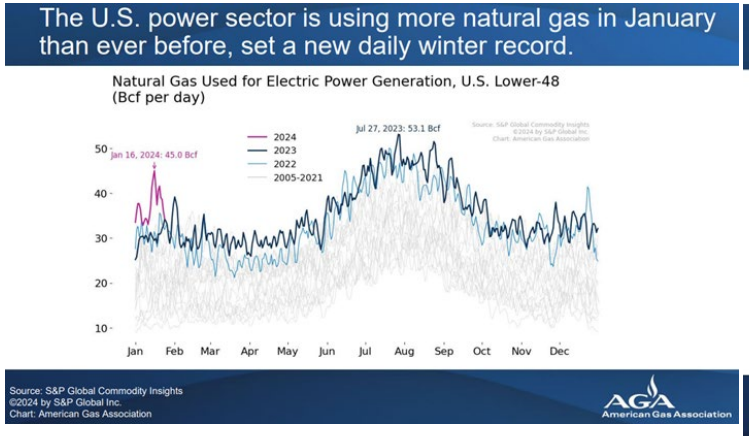


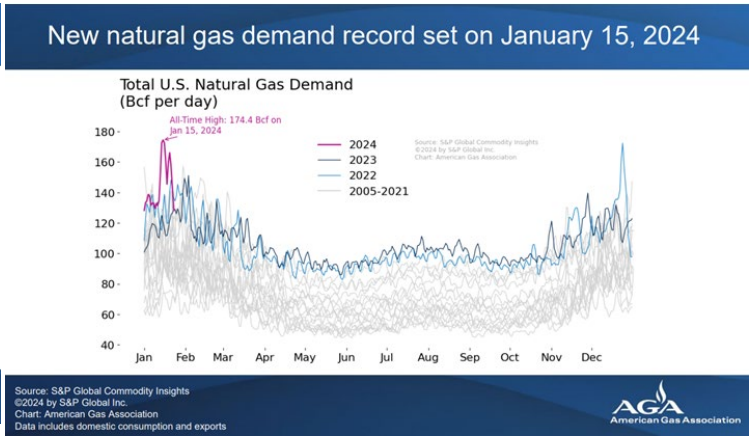
The Cost to Customers



Reliability

- The reliability of Spire Missouri's system is 99.9%. This means the average customer would not experience an outage in their lifetime. Simply put, natural gas is one of the most reliable fuel sources in America.
- By comparison, electric distribution systems experience an average of one outage per year per customer.
- Reliability impacts economies, health and safety, and resiliency.
  - This will be an ongoing discussion that should be part of gas utilities IRPs, as the electric sector further depends and plans to grow natural gas generation for the next several decades.
    - Gas LDC's and electric generation will have to compete more for natural gas interstate pipeline service.





North American Electric Reliability Corporation (NERC)

2023 Summer Reliability Assessment

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

While the increased deployments of wind, solar, and batteries positively impact resource adequacy for normal summer peak demand, two-thirds of North America is at risk of energy shortfalls this summer during periods of extreme demand. The elevated risk outlook is driven by a combination of conventional generation retirements, a substantial increase in forecast peak demand, and an increasing threat to reliability from a wide-spread heat event.

SPP and MISO: With little excess firm capacity, wind energy output is key to meeting normal summer peak demand and more extreme demand levels. Low wind and high demand periods can result in energy emergencies.

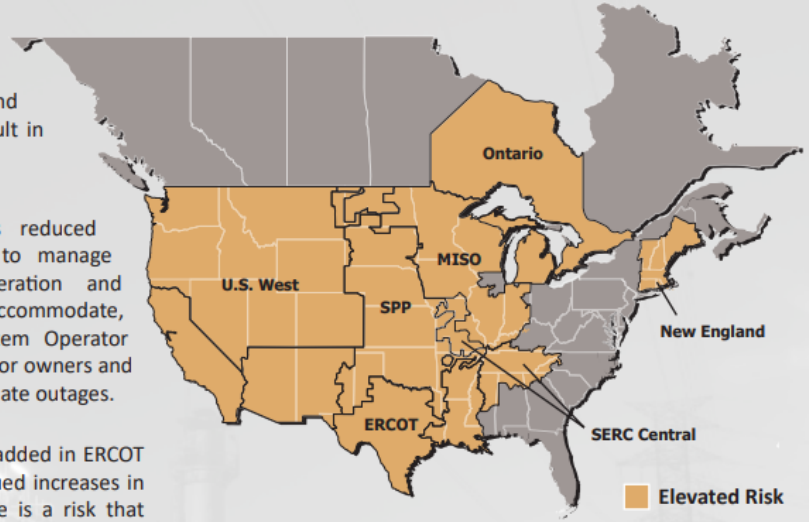
Ontario: Extended nuclear refurbishment has reduced available capacity, resulting in limited reserves to manage unplanned outages and peak demand. Generation and transmission outages will be increasingly difficult to accommodate, a condition that the Independent Electricity System Operator expects to persist for the foreseeable future. Generator owners and system operators must act conservatively and coordinate outages.

ERCOT: More than 4 GW of solar resources were added in ERCOT since last summer; however, this is offset by continued increases in forecasted demand due to economic growth. There is a risk that dispatchable generation can be insufficient for high demand levels when wind output is unusually low.

SERC Central: A higher peak demand forecast and less supply capacity this summer will challenge operators to maintain reserves in extreme scenarios. Conditions could again require appeals for load reductions and energy emergencies for external assistance.

New England: While ISO New England expects to have sufficient capacity to meet summer peak demand, reserve margins are projected to be lower this summer due to less generation and firm imports. Operators are more likely to require conservative operating procedures for managing capacity deficiencies.

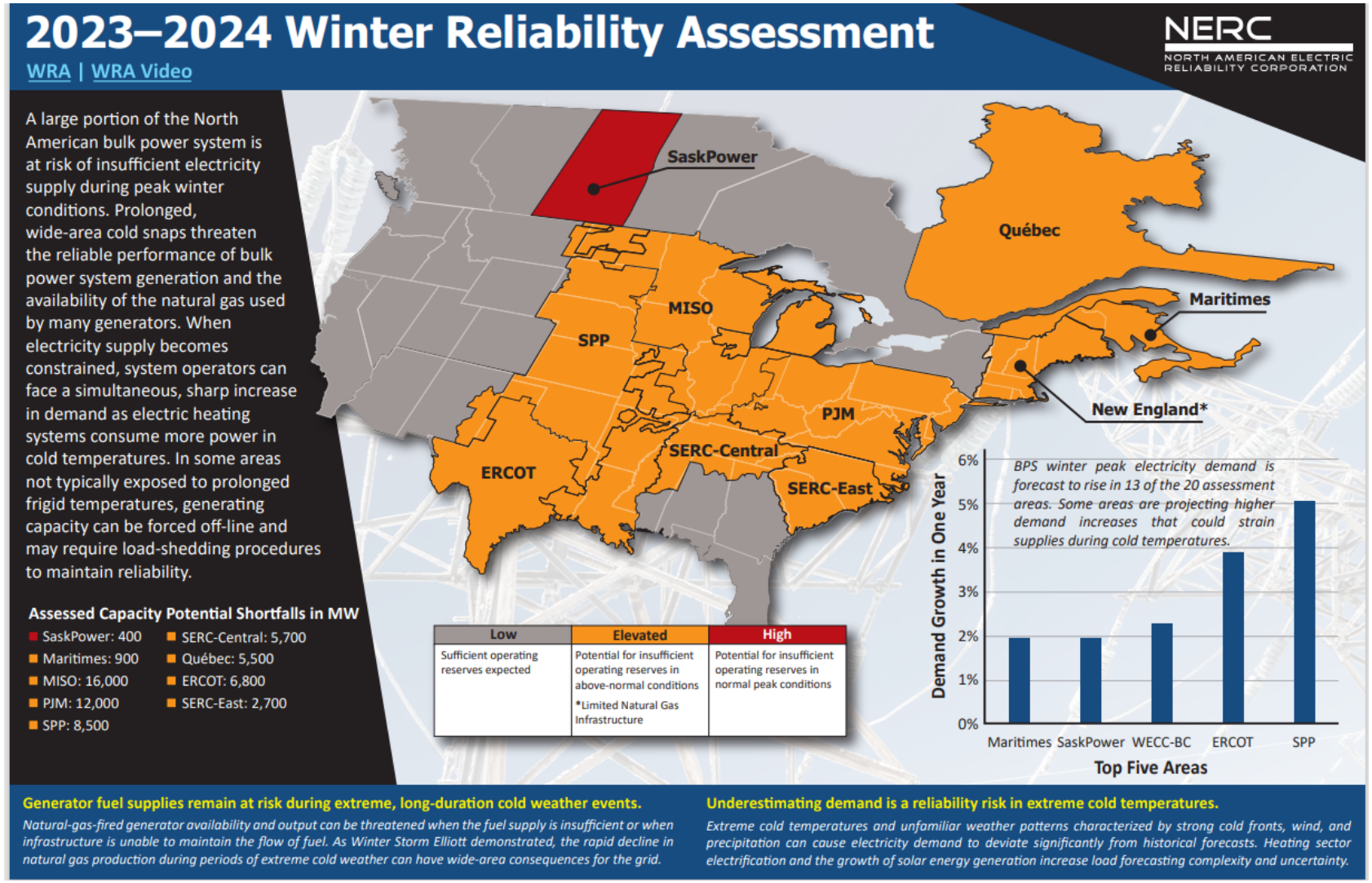
U.S. West: Wide-area heat events can drive demand well-above normal and strain resources and the transmission network. Under an extreme summer peak load, California would need to rely on increased imports to maintain adequate reserves. Conditions could again require voluntary or controlled load relief.



Highlighted areas depict energy shortages during extreme conditions.

2023 Summer Reliability Assessment Video

North American Electric Reliability Corporation (NERC)



Gas Integrated Resource Plan (IRP)

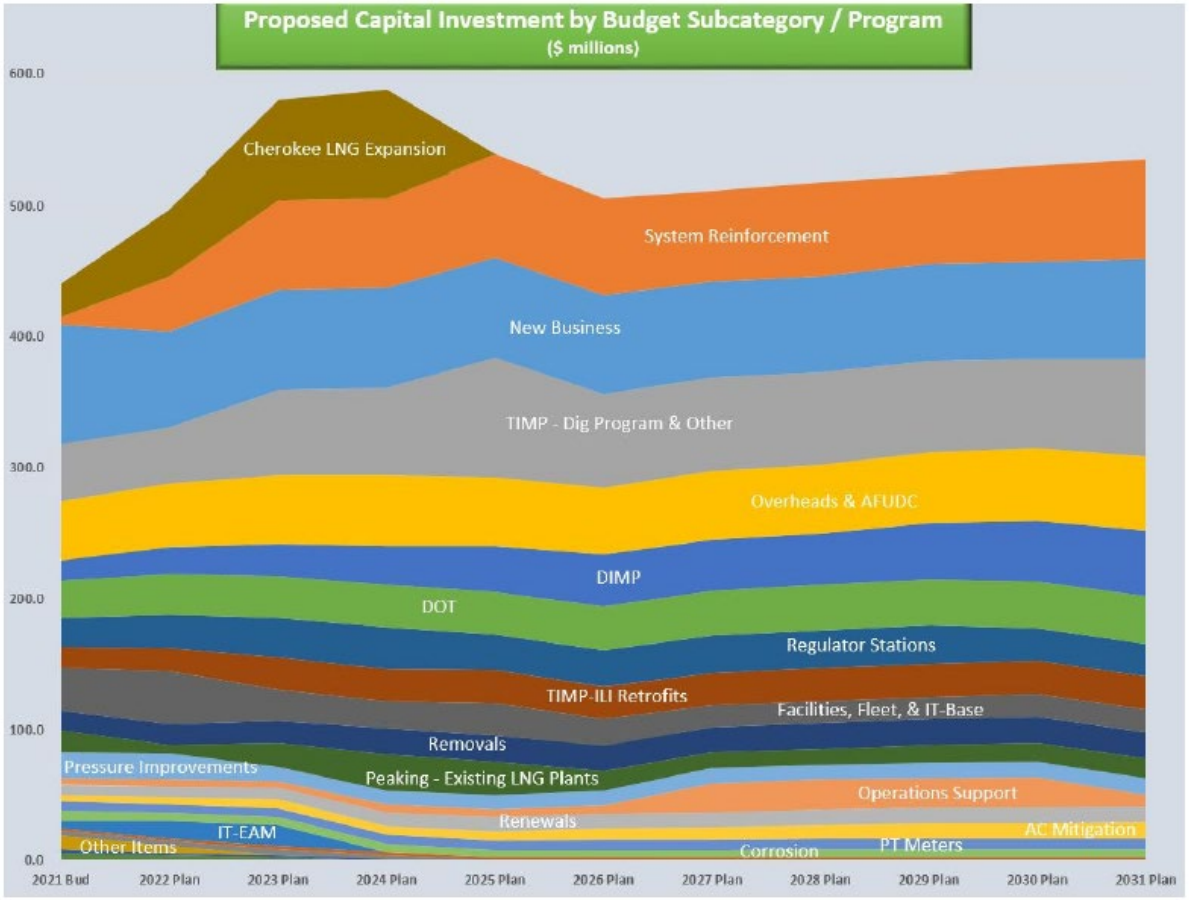
- Allows for stakeholder engagement before the filing (electric process)
- Allows for transparency with capital plans, planning horizons, new programs or technologies, risks and opportunities with regulators.
- Gas IRPs are not commonplace nationwide.
  - There are several states and utilities that have gas IRPs and great products

Executive summary	Industry Overview	Customer demand
Gas forecast	System Capabilities	System Constraints
Distribution system	Integrity management	Environmental review
Purchased Gas	Cost of Service	Interstate pipelines
Reliability	Sustainability	Energy Efficiency

Distribution System Planning and Investment

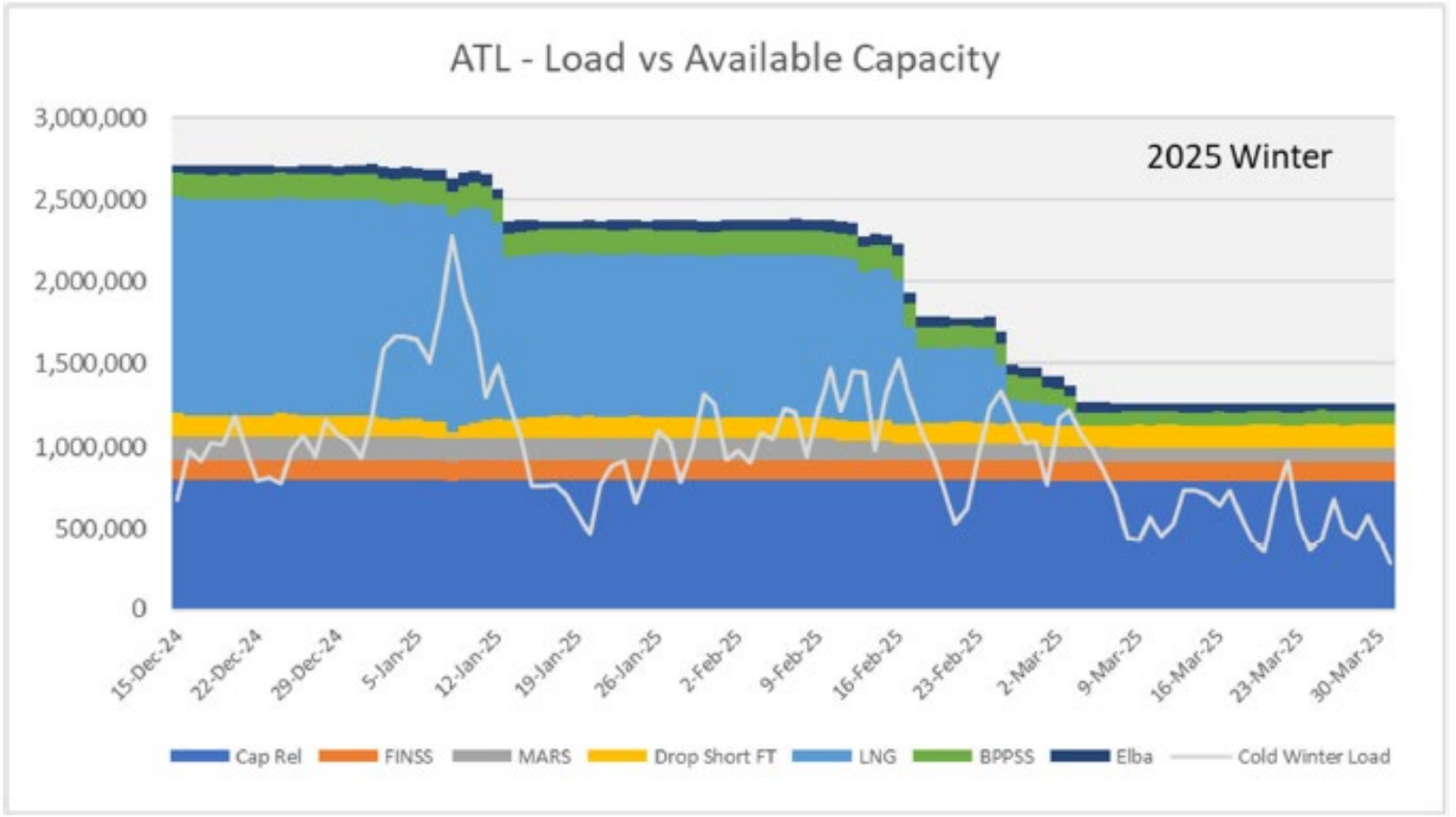
AGL INTEGRATED CAPACITY AND DELIVERY PLAN 2022-2031, DOCKET NO. 43820, 04/28/2021

Figure 8: Proposed Capital Investment by Budget Subcategory/Program

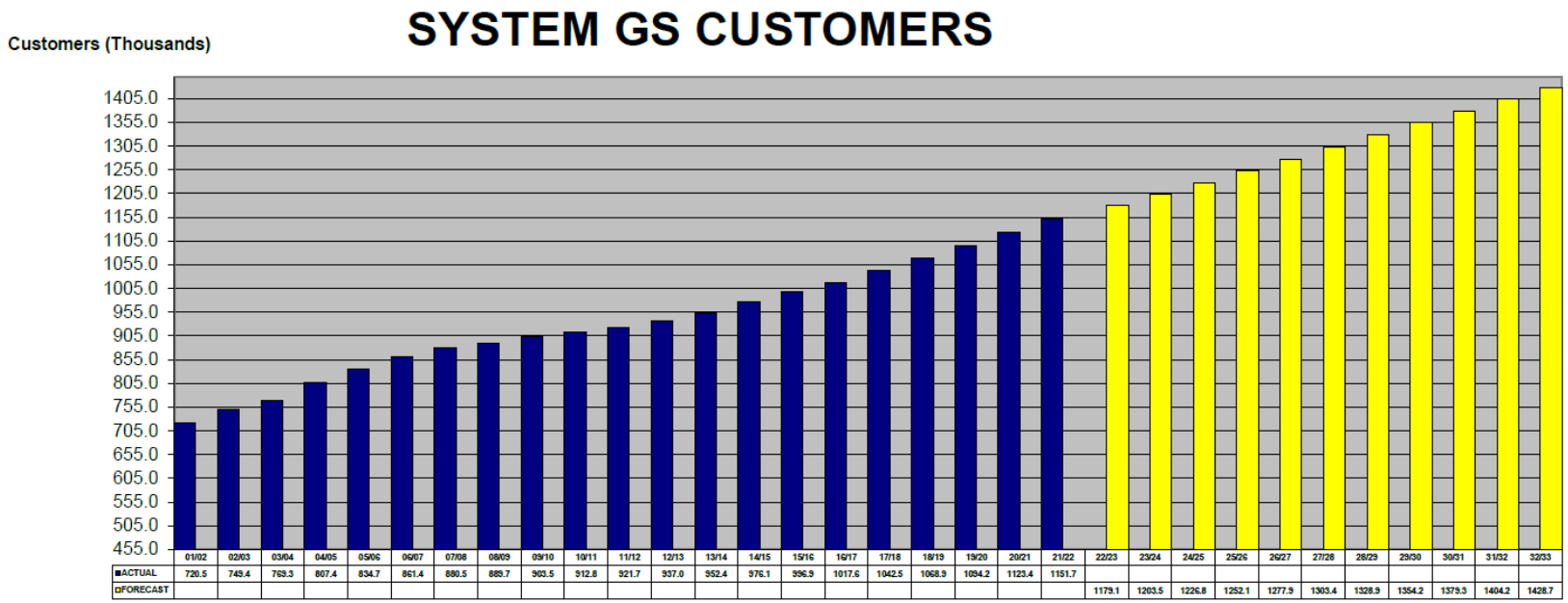


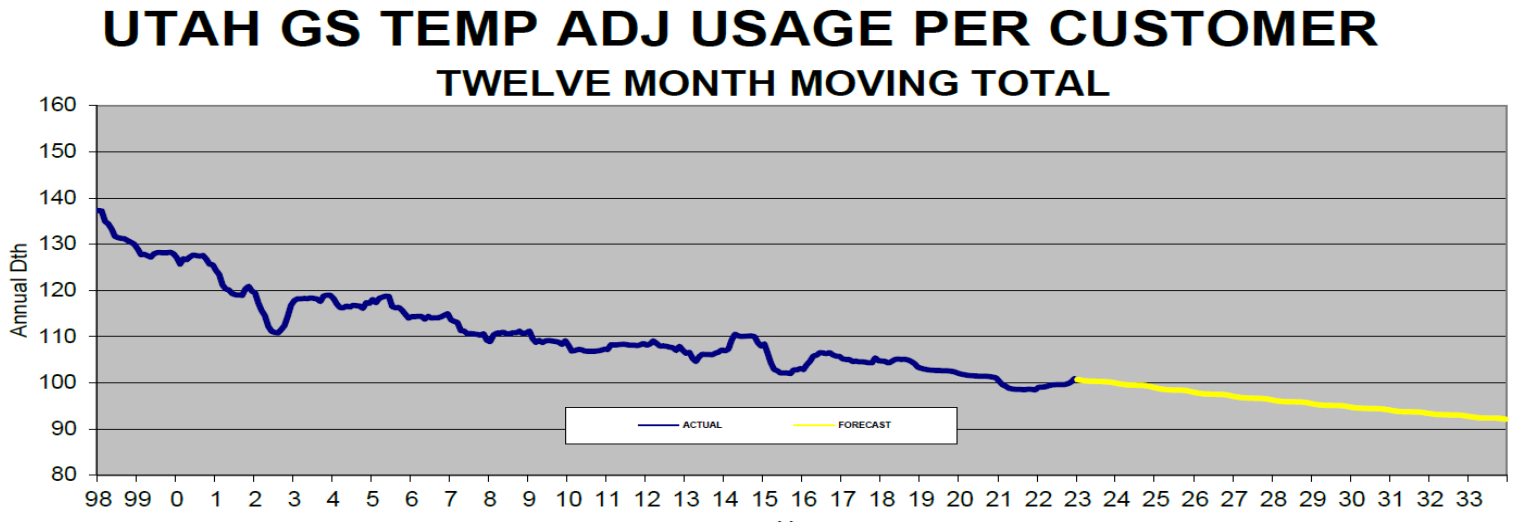
Interstate Pipeline Planning- AGL

Figure 5: Load versus Available Capacity 2024-2025 Winter

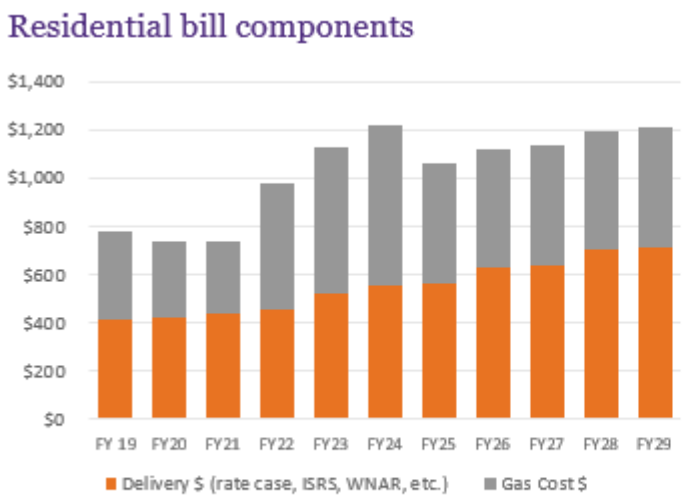


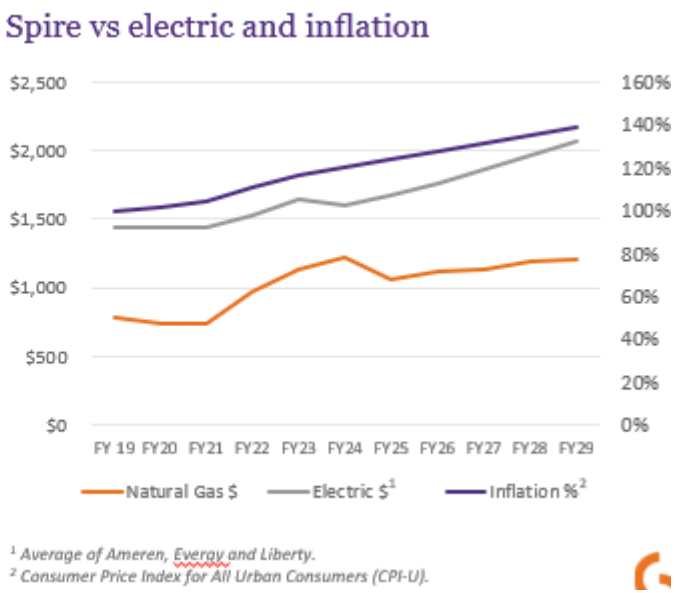
Customers and Usage – Dominion IRP





Customers and Usage





[1] *Average of Ameren, Evergy and Liberty.*
[2] *Consumer Price Index for All Urban Consumers (CPI-U).*

- Addresses energy efficiency and programs offered
- Sustainability
  - RNG
  - Other technologies and programs
  - Carbon goals

UTC
Washington Utilities and Transportation Commission

Natural Gas Resource Planning

Byron Harmon – Regulatory Analyst
Washington Utility and Transportation Commission

Disclaimer

This presentation states the informal opinions of Staff, and is not intended as legal advice. Opinions are not representative nor binding on the Washington Utility and Transportation Commission.

What is the Status Quo?

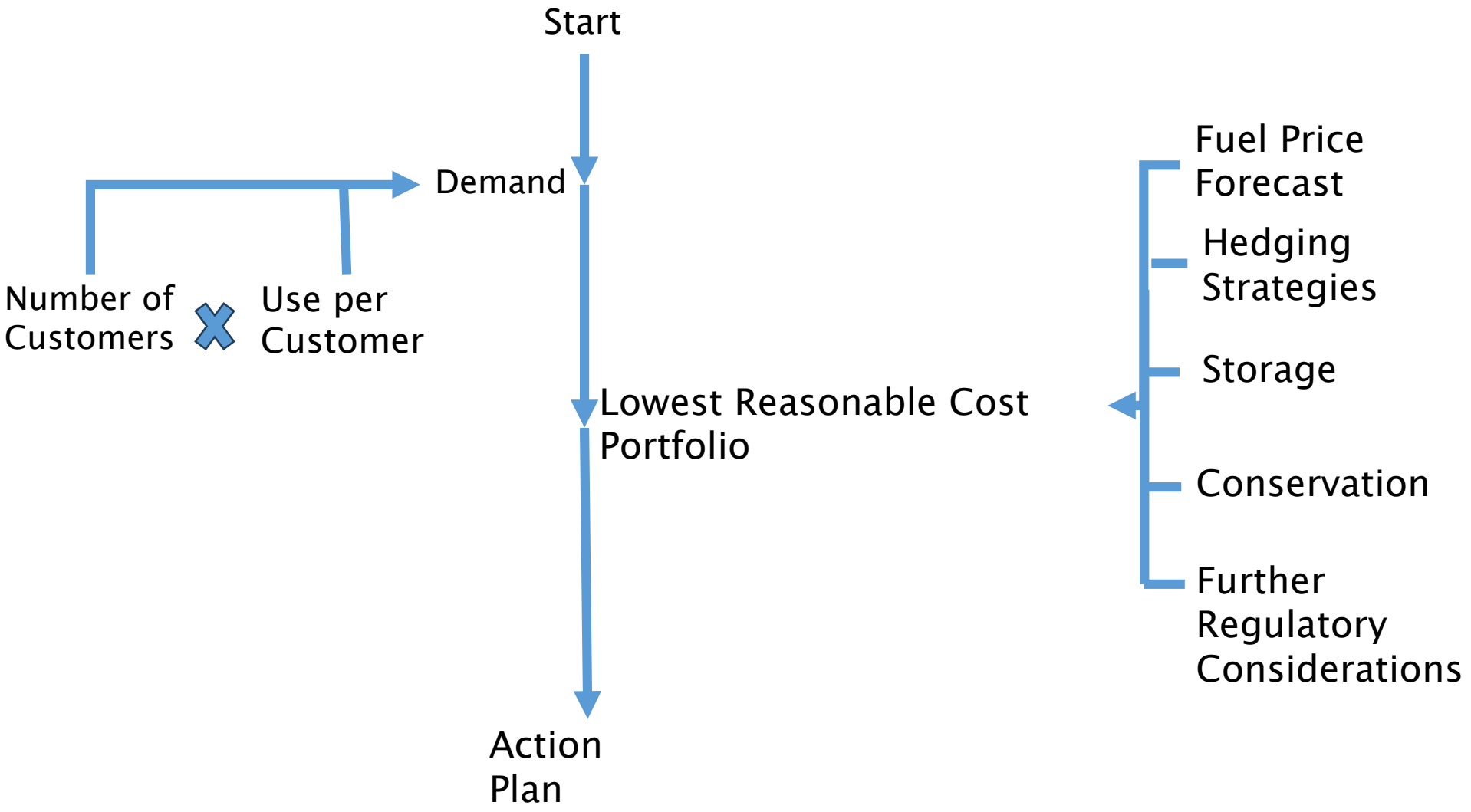
Traditionally, an Integrated Resource Plan (IRP) has two halves that are being solved:

1. Demand
2. the Lowest Reasonable Cost portfolio to meet that Demand.

This analysis is followed by a two-year action plan

See Washington Administrative Code (WAC) 480-90-238

Visualized map



What are the drivers of change?

- Equity
  - RCW 80.28.425(1)
  - Adds Equity as a consideration in Public Interest determinations
- Building Code Statutes
  - RCW 19.27A.020(2)(a) and RCW 19.27A.160
- Cap and Invest
  - Climate Commitment Act RCW 70A.65
  - Administered by the Department of Ecology

Equity

- Utilities are asked to consistently apply an equity lens
- The Commission commits to ensuring that systemic harm is reduced rather than perpetuated by our processes, practices, and procedures
- IRP is an opportunity to demonstrate equity is considered
  - Local environmental impacts due to siting
  - Participation in company programs esp. Energy Efficiency and Low-income programs
  - Customer demand elasticities
  - Not intended as a paragraph or a chapter of an IRP but a recurring theme in IRP analysis.

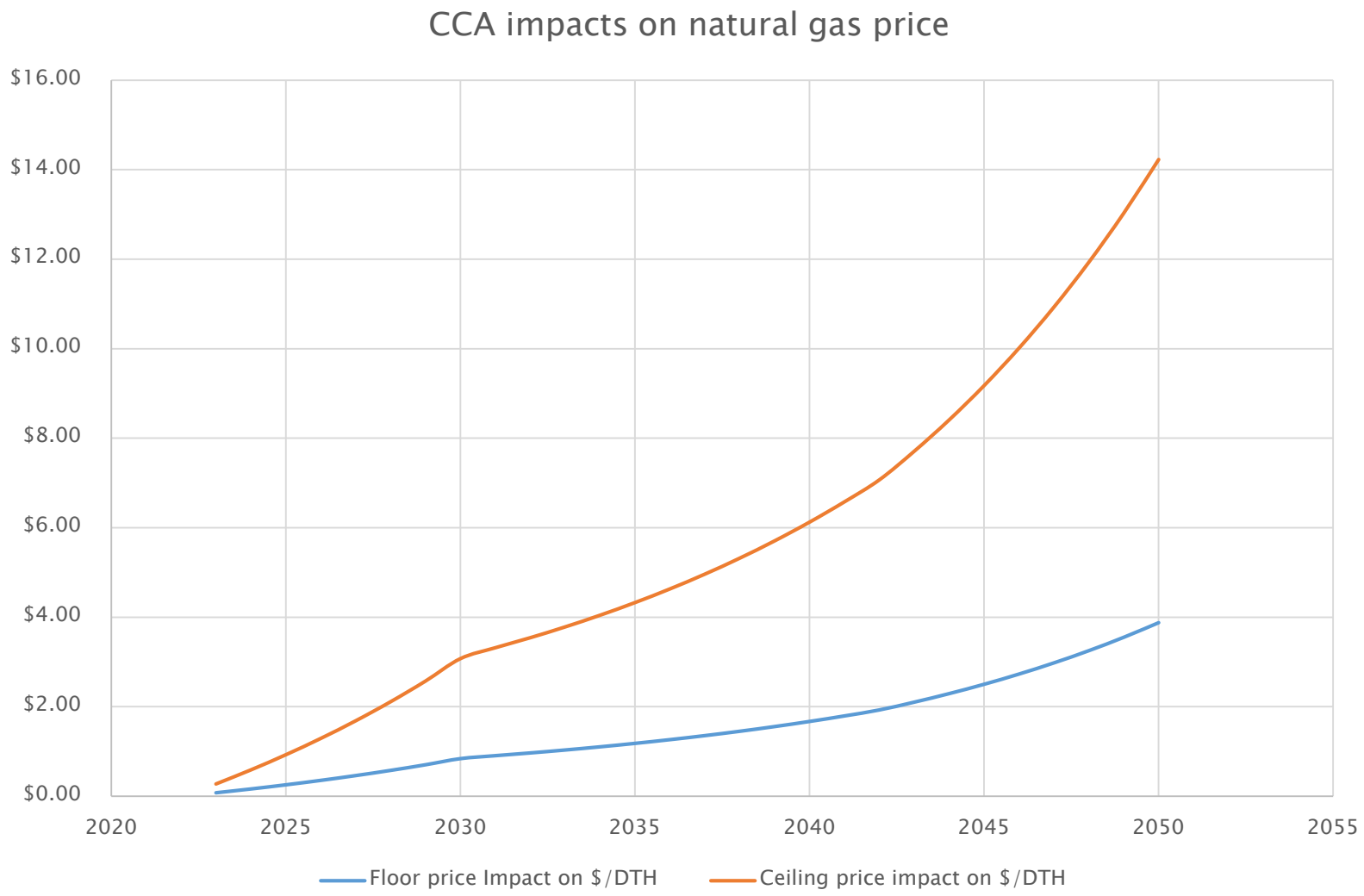
Building codes

- RCW 19.27A.020(2)(a)
- goal of building zero fossil-fuel greenhouse gas emission homes and buildings by 2031.
- Staff expect zero new customers after 2031
- Builders and utilities are already responding to the new codes

Climate Commitment Act

- Introduces Compliance Costs to spur the reduction in emissions
- Purchase of Allowances, Offsets, Price Ceiling Units, and lower/no-emission fuels
- Gas Utilities are allotted free allowances.
- The number of Free Allowances decreases linearly each year
- Meaning the Utilities must purchase more allowances each year (unless they reduce emissions)
- Auction ceiling and floor prices increase by 5% each year.

Increasing cost of Natural Gas



This assumes demand doesn't decrease.

What is Staff learning?

- Steep learning curve
  - Implementation of the CCA during the 2022/23 IRP cycle
- Utilities offered mixed analysis
  - CCA compliance costs
  - Fixed costs to Customer Count Ratios
  - Modeling customer bill impacts in various scenarios
  - Alternative fuel costs
  - Role of conservation in mitigating customer costs

Missing Components and Next Steps

- Utilities largely failed to address the impacts of building codes and building stock attrition
- Clear possibility for positive feedbacks between building codes and CCA compliance costs
  - The rapidity of this feedback loop is a great unknown
  - Working with Utilities to articulate this risk
- With the recognition of the risk, Staff and Utilities can start investigating strategies to mitigate undesirable outcomes:
  - Targeted energy efficiency programs
  - Fuel decarbonization
  - System pruning
  - Rate Design
  - Hydrogen-only customers

Lessons learned and recommendations

- Hold Utilities to clear Statutory and Regulatory-based parameters
- Insist on evidence-based assumptions in models or that the utility be very transparent about the basis for its assumptions
- Many of Staff's insights were based on utility stress-testing scenarios