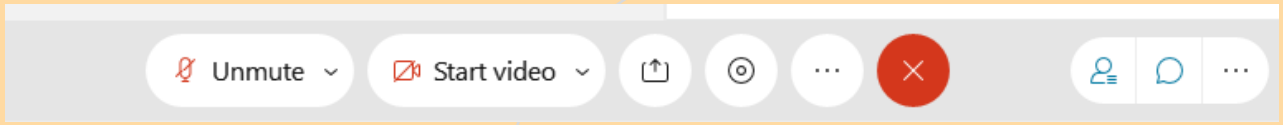
Welcome

The program will begin at 10:00am.

Prepare your WebEx Event space:



1

Locate this toolbar at the bottom of your WebEx window.

Click

Click Participants and Chat icons to open the panels.

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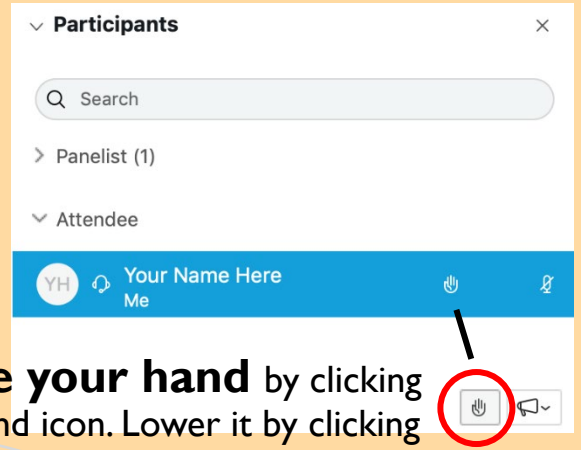

Raise your hand by clicking the hand icon. Lower it by clicking again.

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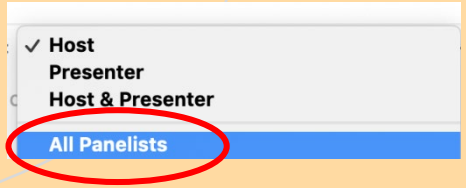


For assistance/questions, select TO: **ALL PANELISTS**

When providing chat feedback, select TO: **ALL PARTICIPANTS**

Send a chat message to all participants with your name and organization.

California Public Utilities Commission

Natural Gas 101 and Policies for a Just Transition

Gas Infrastructure and the Long-Term Gas Planning Proceeding (R.20-01-007), Enabling a Just Transition

March 16, 2022

California Public Utilities Commission

Overview of Program

- Natural Gas 101 – Chris Moore
- Understanding the Gas OIR (R.20-01-007) in Context –Jean Spencer
- Input on Engagement and Moving Forward
- Q&A and Discussion

Natural Gas 101

Understanding the natural gas system

California Public
Utilities Commission

03.2021

Natural Gas 101 Presentation Outline

Presented by Chris Moore

A Short History of Natural Gas

Present Gas Infrastructure System

Current Challenges and Opportunities

California Public Utilities Commission

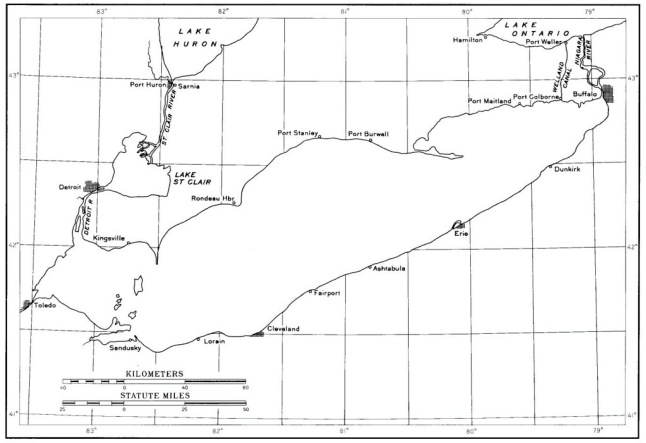
A Short History of Natural Gas

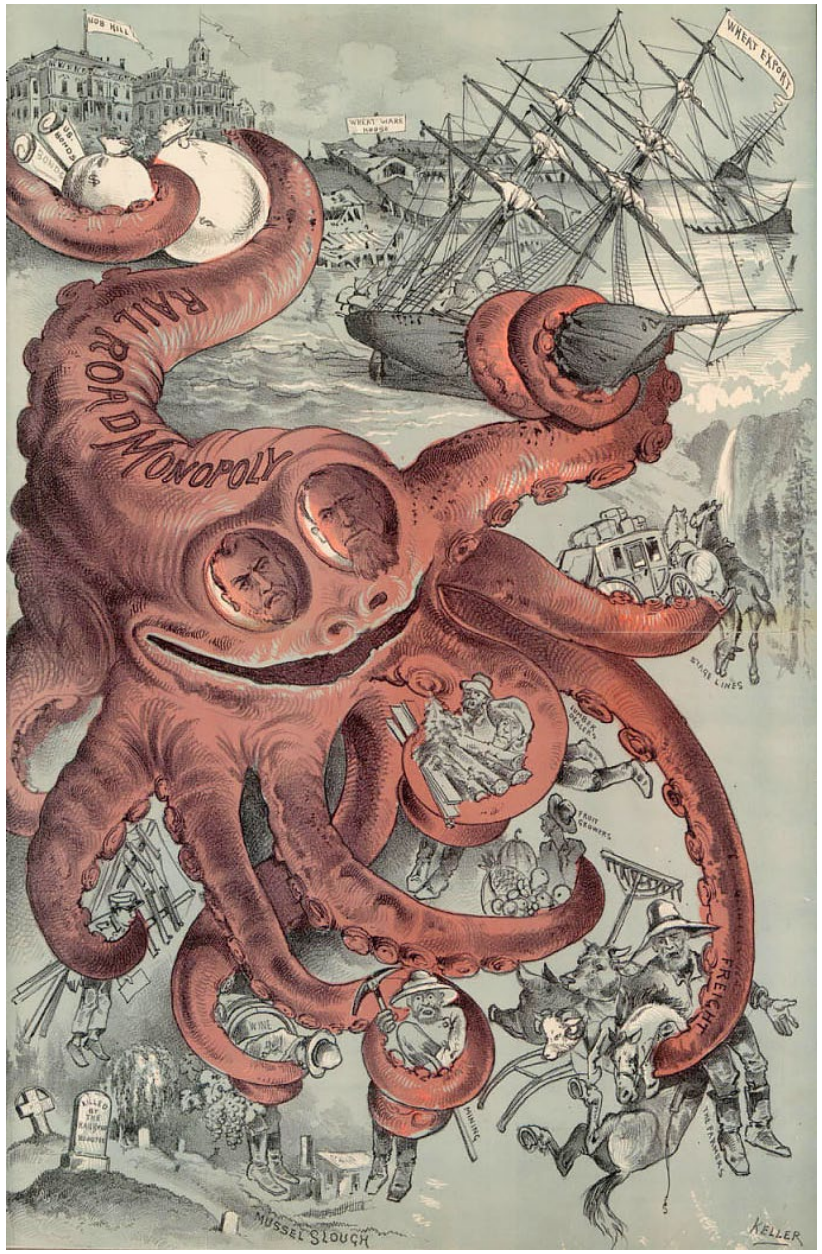
How We Got Where We Are Today

Gas History

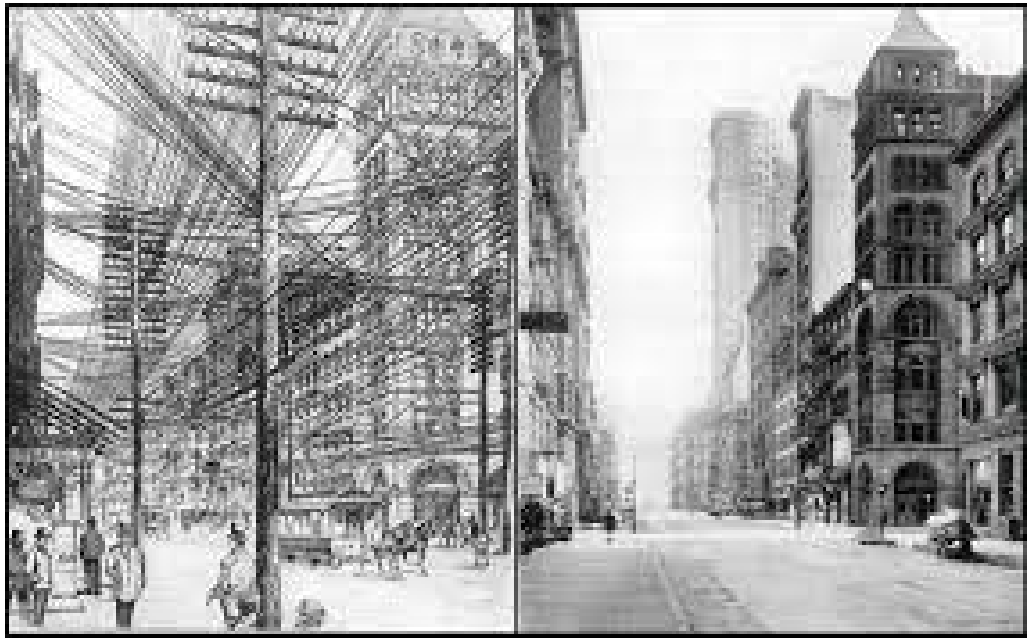
Pre-Modern Use of Gas

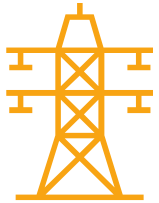
Early-Modern Use of Gas





19th Century Monopoly Power and Destructive Competition





Electric and
natural gas utilities

Communications

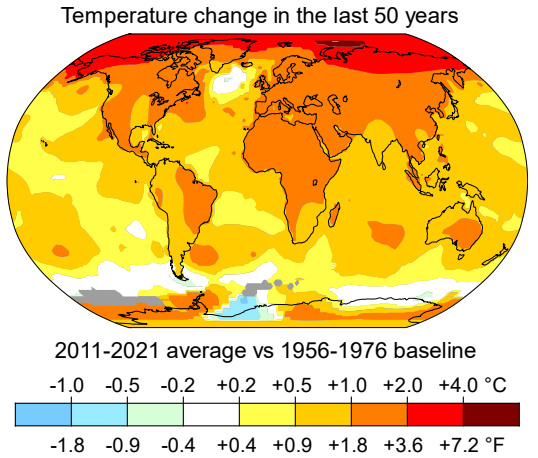
Current Day Regulated Industries

Rail safety

Passenger carriers

Water systems

Changing Technologies and Priorities

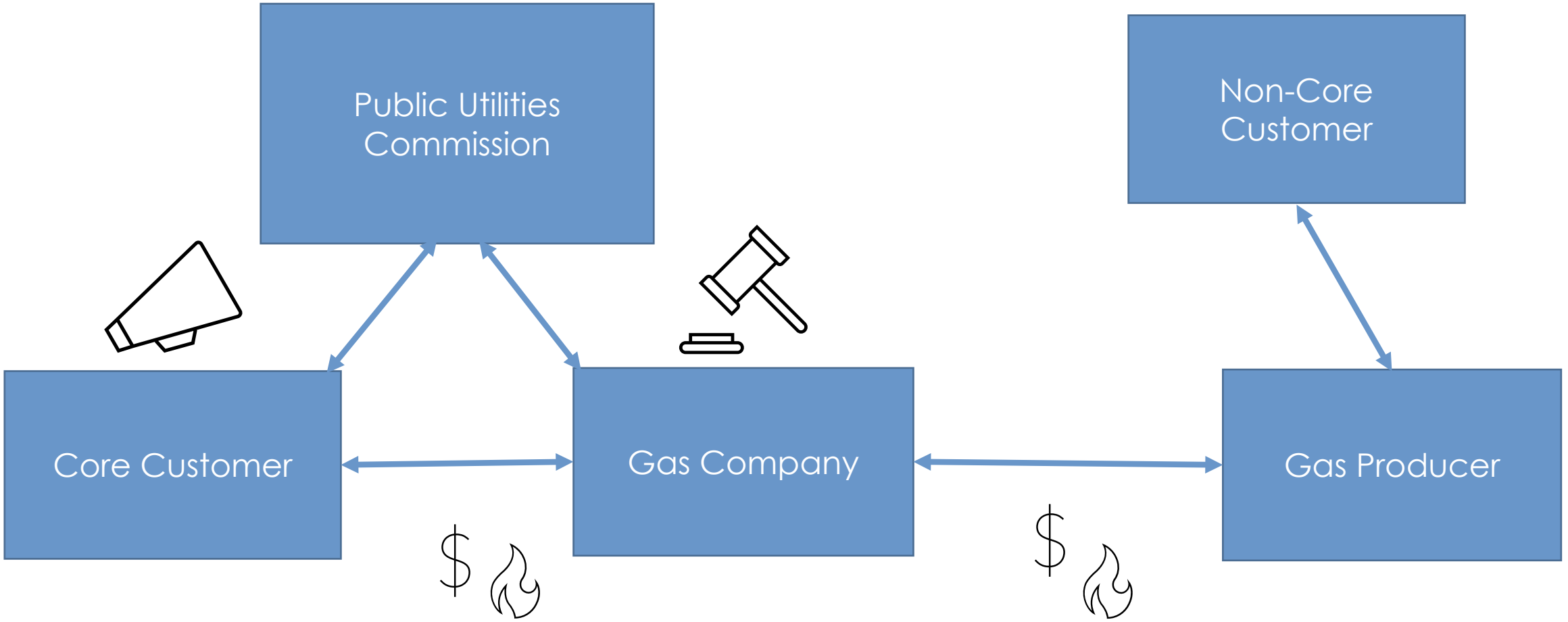


Present Gas Infrastructure System

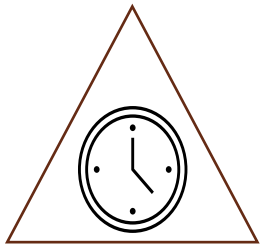
Basics of the Gas System

- How It's Regulated
- Core vs. Noncore customers
- California's Gas Infrastructure
- Gas markets
- Storage

Roles/Organizations in the Gas System

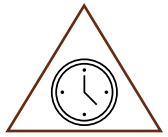


Safety, Reliability, and Affordability



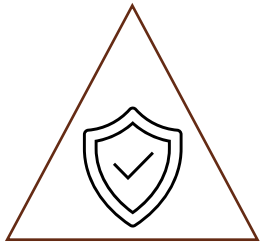
Safety Issues

Injury, loss of life, property and environmental damage



Pipeline and storage outages

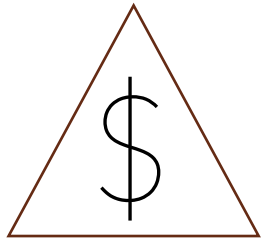
Costs to replace and maintain infrastructure



Reliability Needs

System is designed to meet peak demand

Demand outstripping infrastructure leads to high costs



High Costs

Impacts affordability for customers

Roles/Organizations in the Gas System

Core Customer

- Schedules delivery of and uses gas
- Pays bills to gas company
- May complain to CPUC

Gas Company

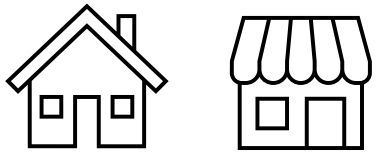
- Builds & maintains infrastructure
- Applies to CPUC for permission to collect ratepayer dollars
- Purchases gas on behalf of core customers and passes through costs.
- Obligated to serve core customers

Public Utilities Commission

- Charged with seeing safety, reliability, and affordability of gas system
- Reviews gas company applications and customer complaints

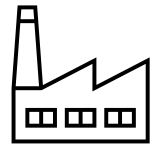
Types of Customers

Core customers



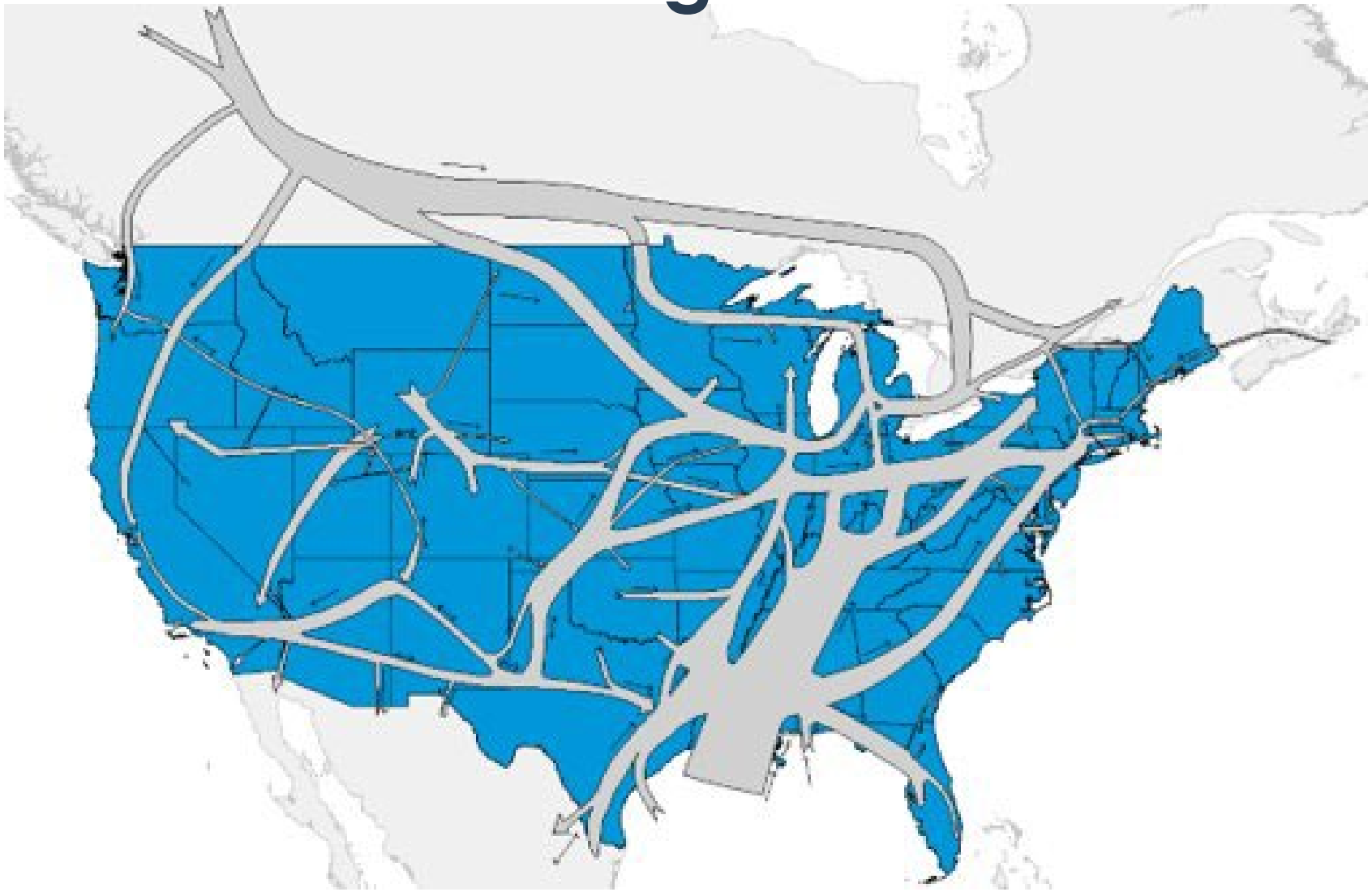
- Residential and small commercial customers
- The utility procures and transports their gas
- Pay a premium for more reliable service
- Primary users of distribution lines

Noncore Customers



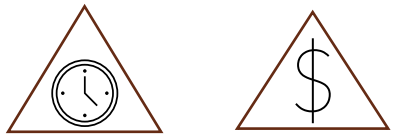
- Large commercial and industrial customers
- Examples: Electric generators, refineries, factories, hospitals
- Procure their own gas supply and transportation services
- Exposed to more market & reliability risk
- In Southern California, electric generators are the first to be **curtailed**

Where does California's gas come from?



EIA, 2015.

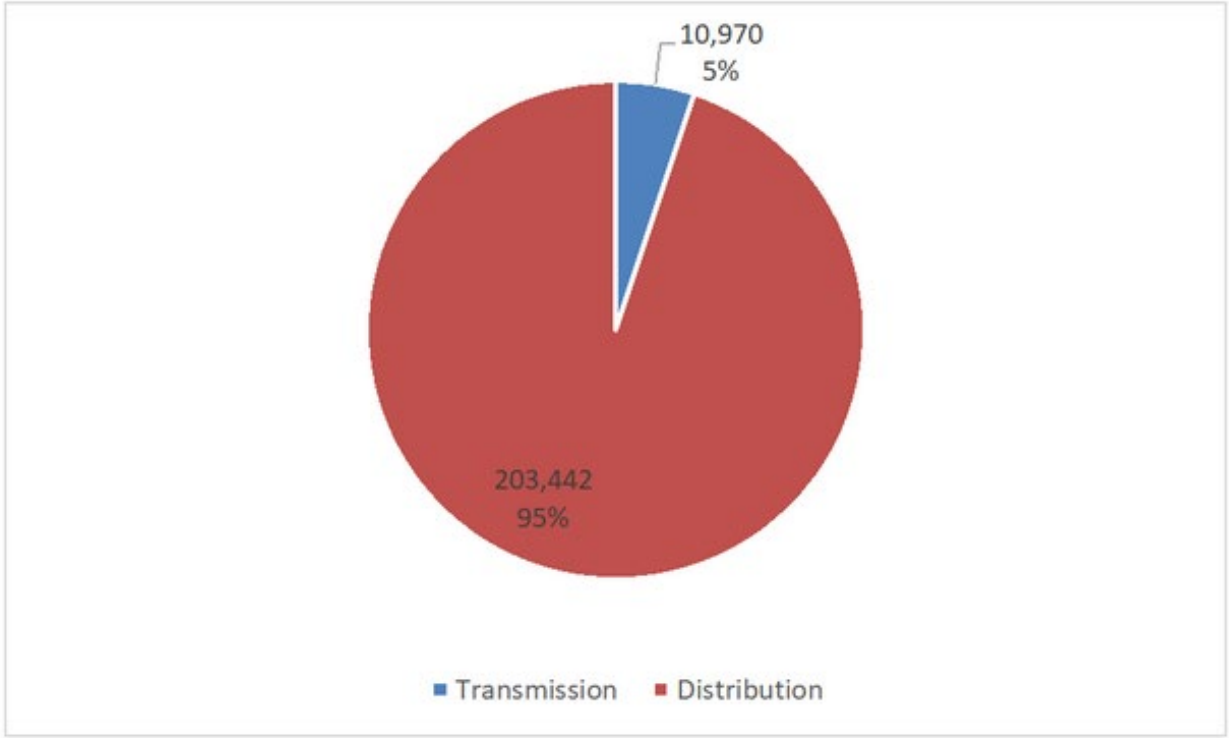
Getting the Gas to the Customer



California's Gas Infrastructure

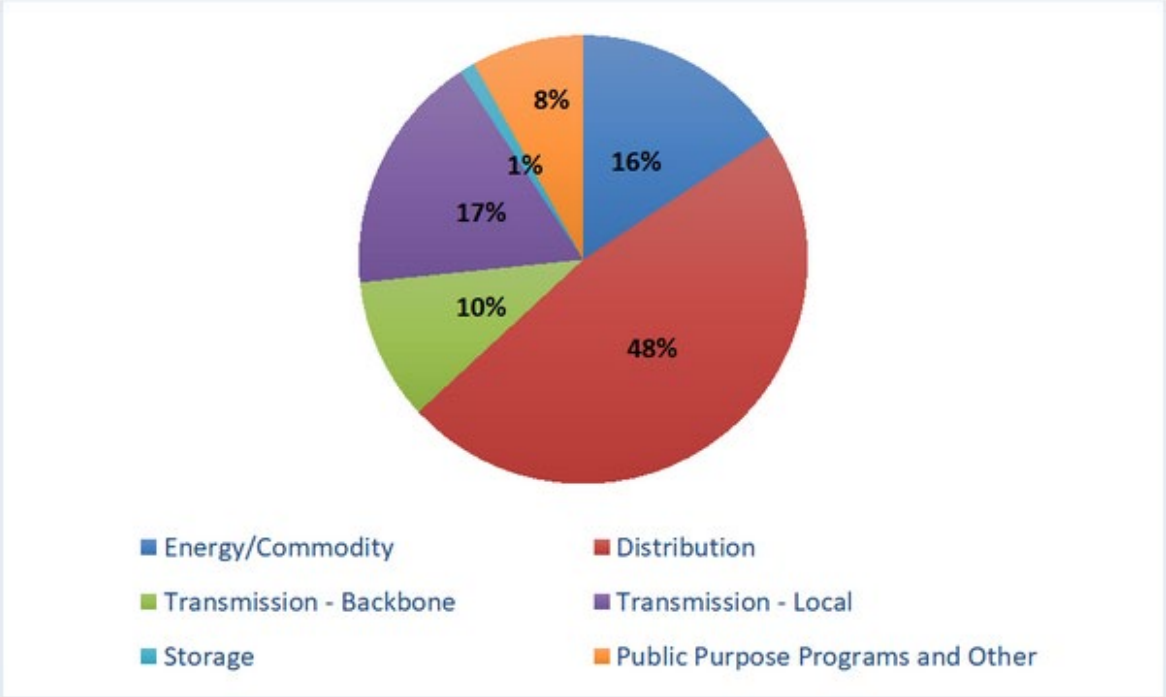
- **Transmission lines** bring large amounts of gas long distances under high pressure
- **Distribution lines** bring gas from the transmission lines to the customer at relatively low pressure

Miles of Pipeline in California, 2020

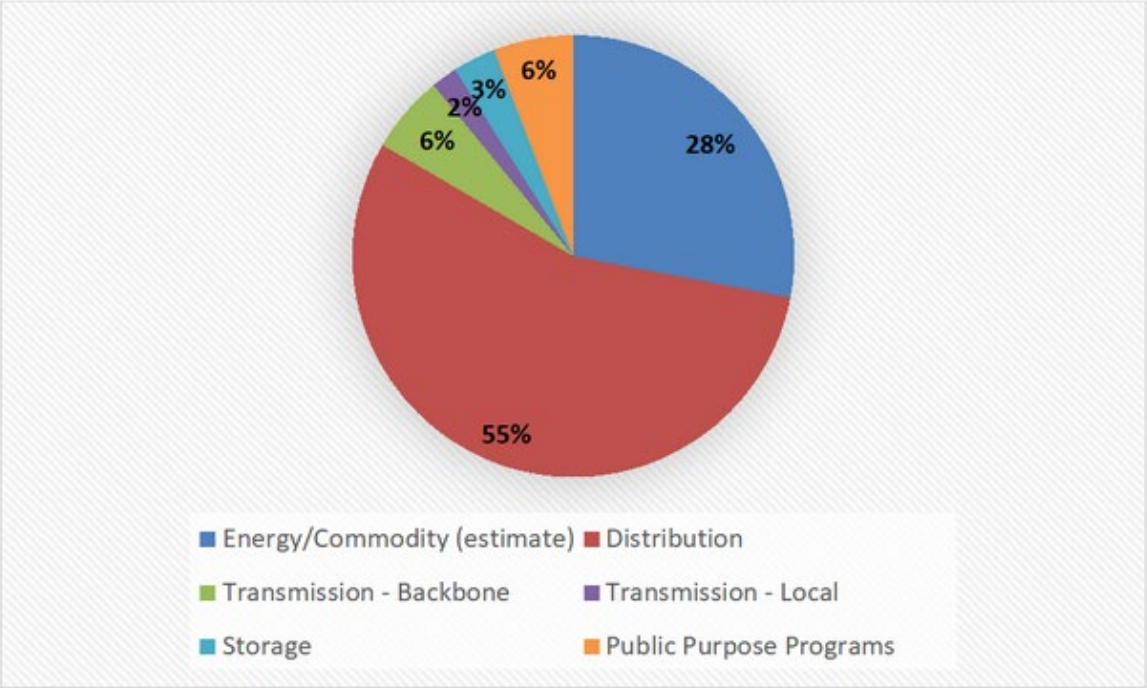


Distribution is a Big Driver of Total System Costs

PG&E 2022 Revenue Requirement



SoCalGas 2022 Revenue Requirement



Building for Reliability

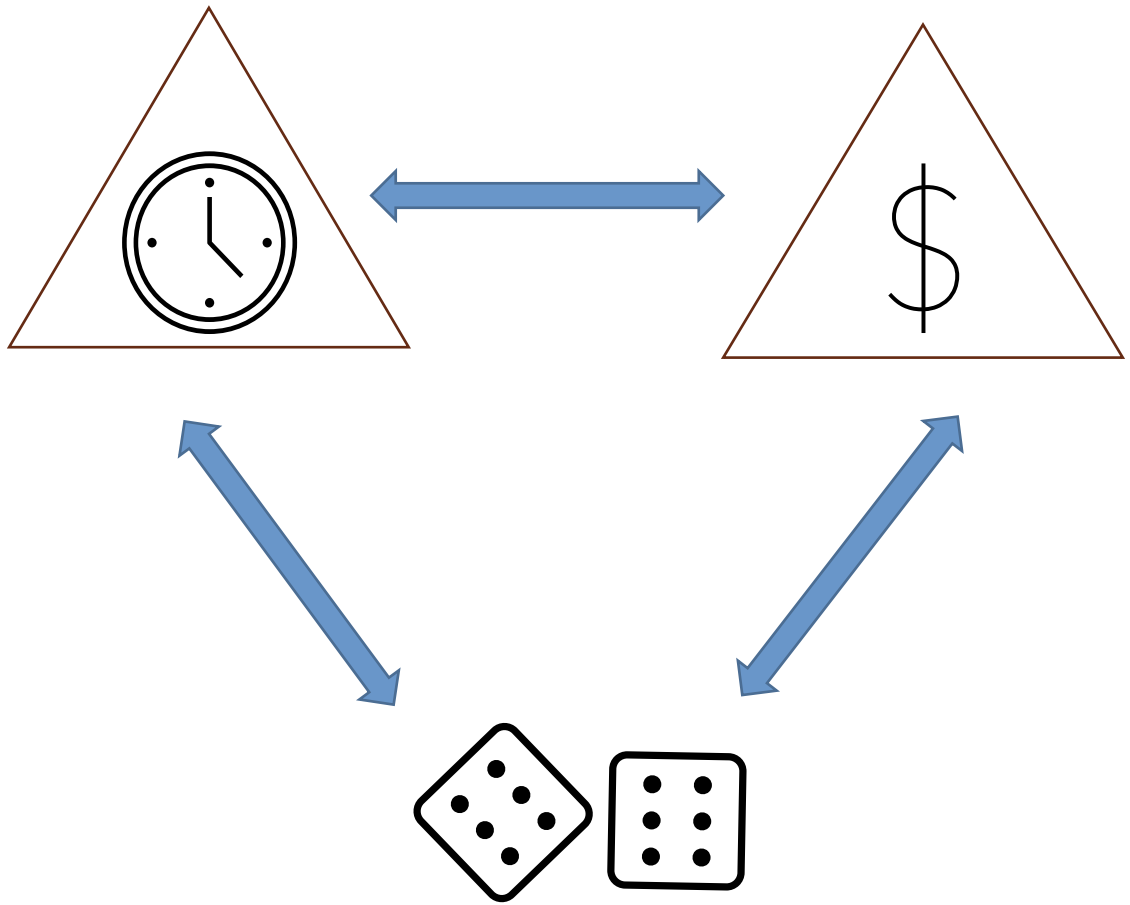
- Many design standards currently in use in California.

- SoCalGas Example:
  - Coldest day in 10 years : Sufficient pipelines and storage to serve All customers served
  - Coldest day in 35 years: All core customers served; all noncore customers **curtailed**

How do gas markets work?

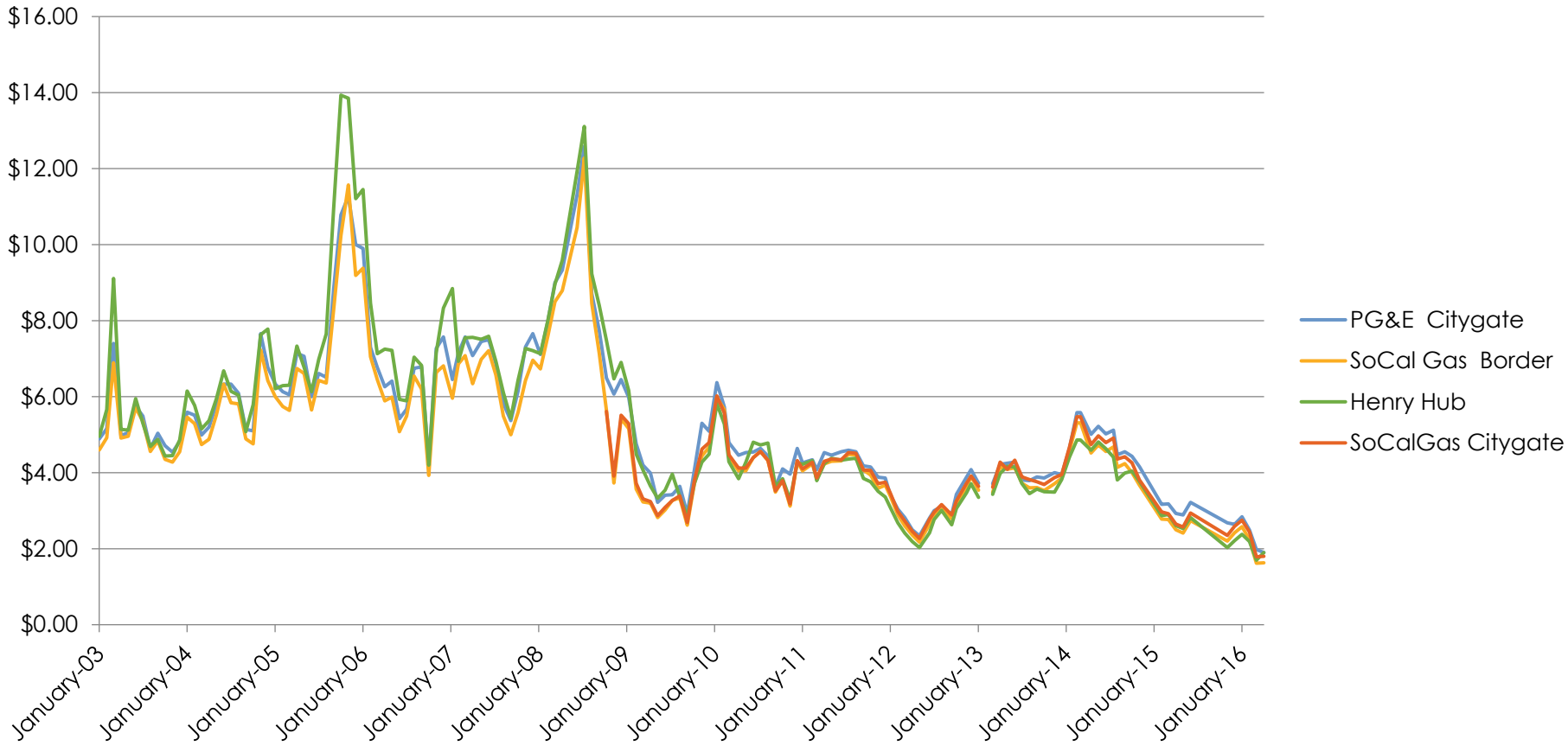
Contracts can be:

- Spot
- Monthly
- Long-Term
- Interruptible
- Firm



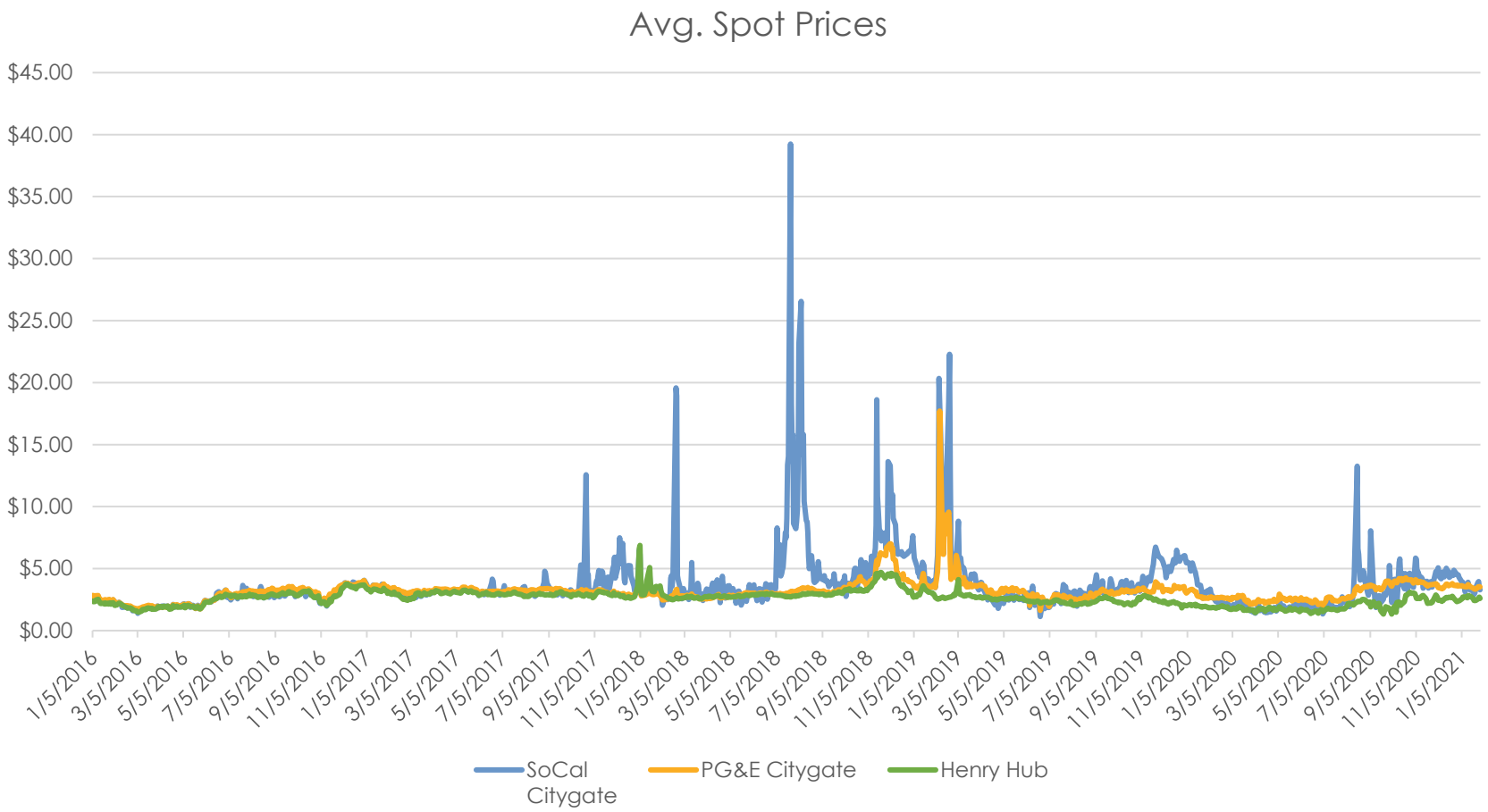
How do gas markets work?

Volatility: Change in Supply and Demand, Prices 2003-2016



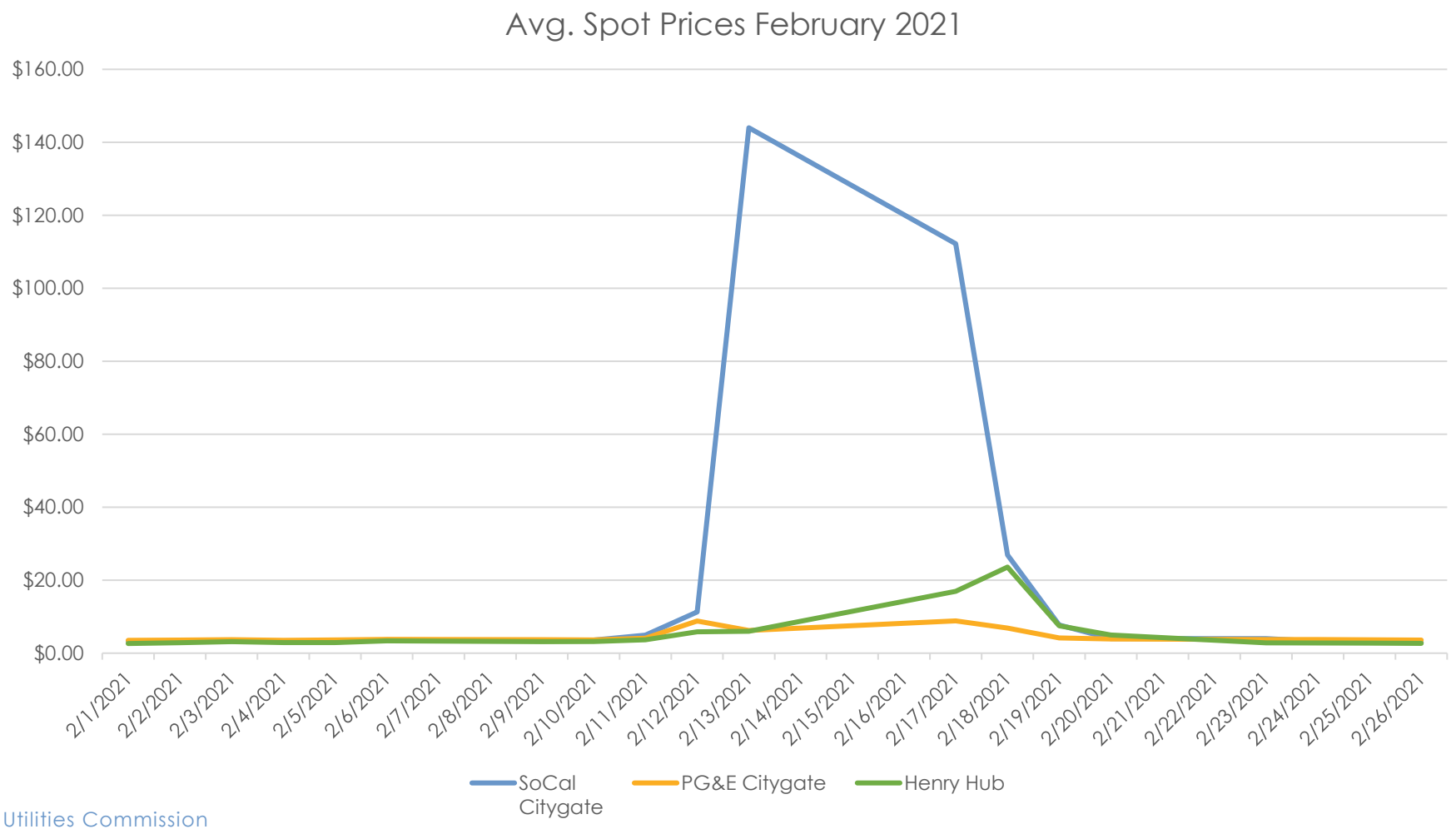
Gas Prices: January 2016 thru January 2021

Volatility: Disruptions Due to Infrastructure



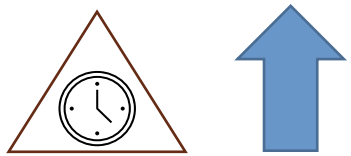
Gas Prices: February 2021

Volatility: Disruptions Due to Supply Shortage + Infrastructure



Storage

Improving Reliability



- Gas travels 20-30 miles per hour
- Storage fields close to demand centers help meet peak demand requirements

Managing Costs

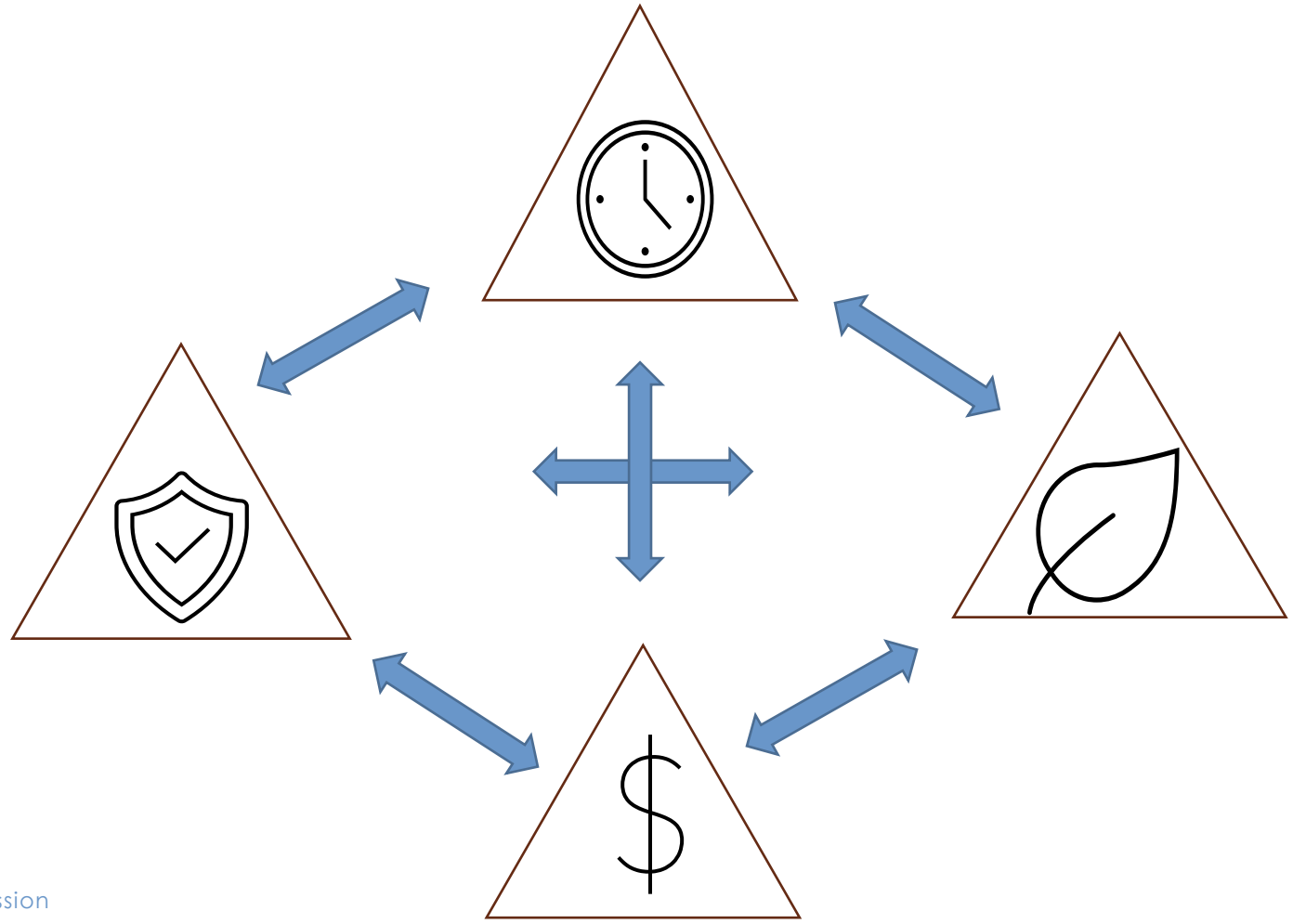
- Purchase gas in Summer for use in winter
- Hedge against short-term high prices

Current Challenges and Opportunities

Challenges and Opportunities

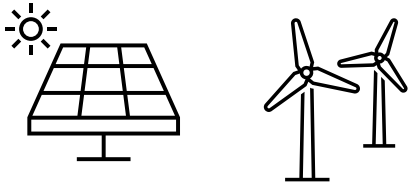
- Renewables and Reliability
- Electric-Gas Systems Interdependence
- Distribution System Pruning
- New Technologies

Safety, Affordable, Reliable…and Green



Renewable Resources

Benefits

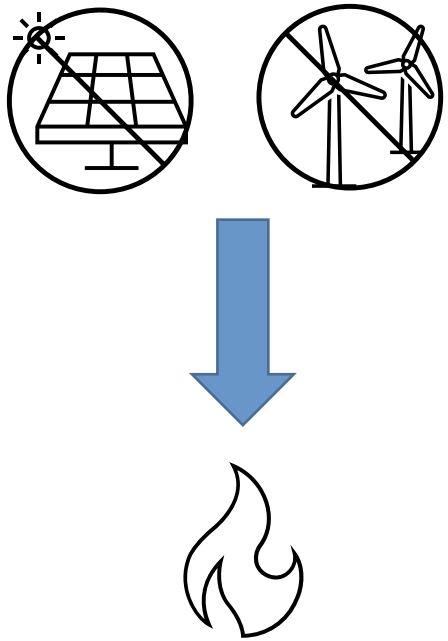


- Carbon-free
- Affordable
- “Preferred” resources

Challenges

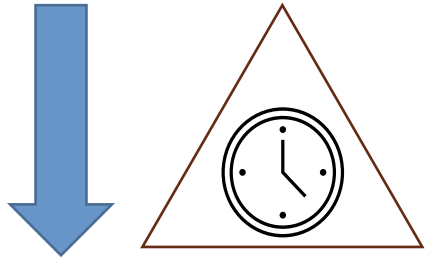
- Variable production based on external factors
- Not “dispatchable”
- Short-term batteries can daily variability but not sufficient for extended periods (e.g. Winter, wildfires)

What does this mean for the gas system?

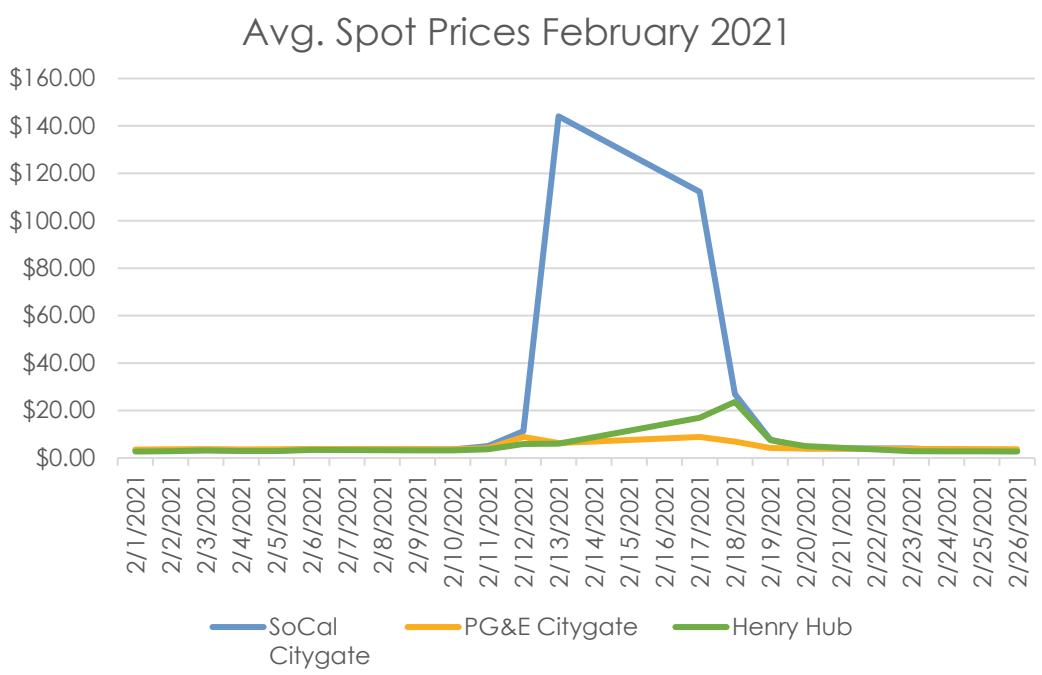


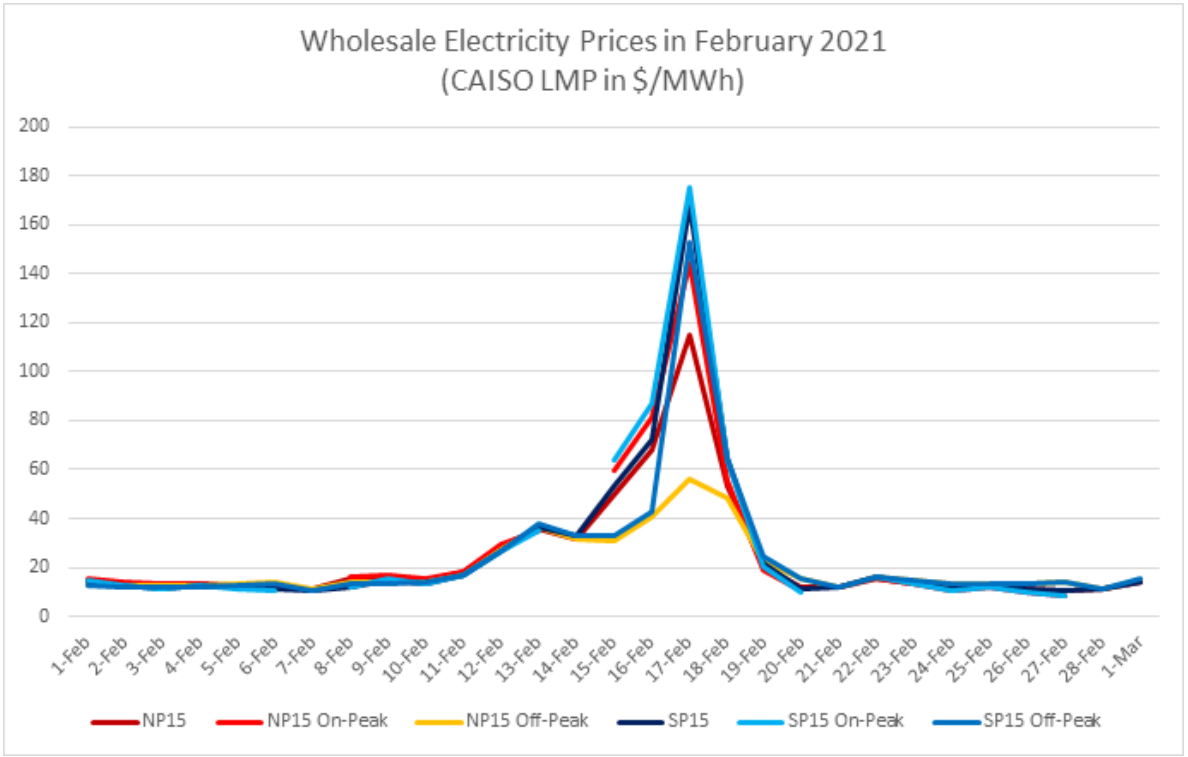
- Makes it difficult to disinvest in gas transmission and storage infrastructure
- Lower throughput but still very high peak demand
- Strains on pipelines and continued need for storage

- Electric generators have little incentive to buy “firm” contracts
- Increased risk



Gas-Electric Interdependence





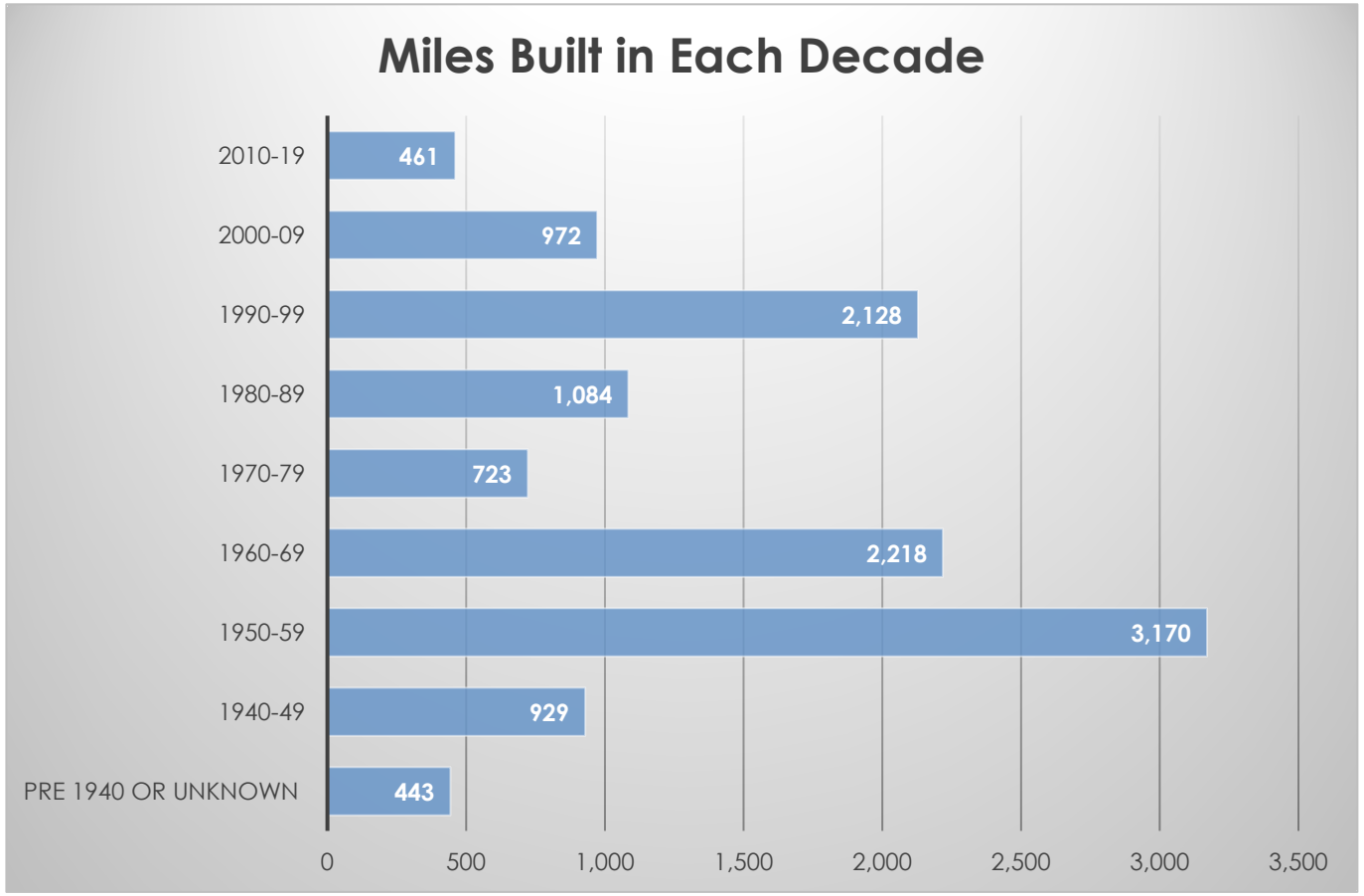
Implications

- Continued reliance on transmission and storage infrastructure.
- Need to balance investments for safety with overall need to manage and reduce costs.

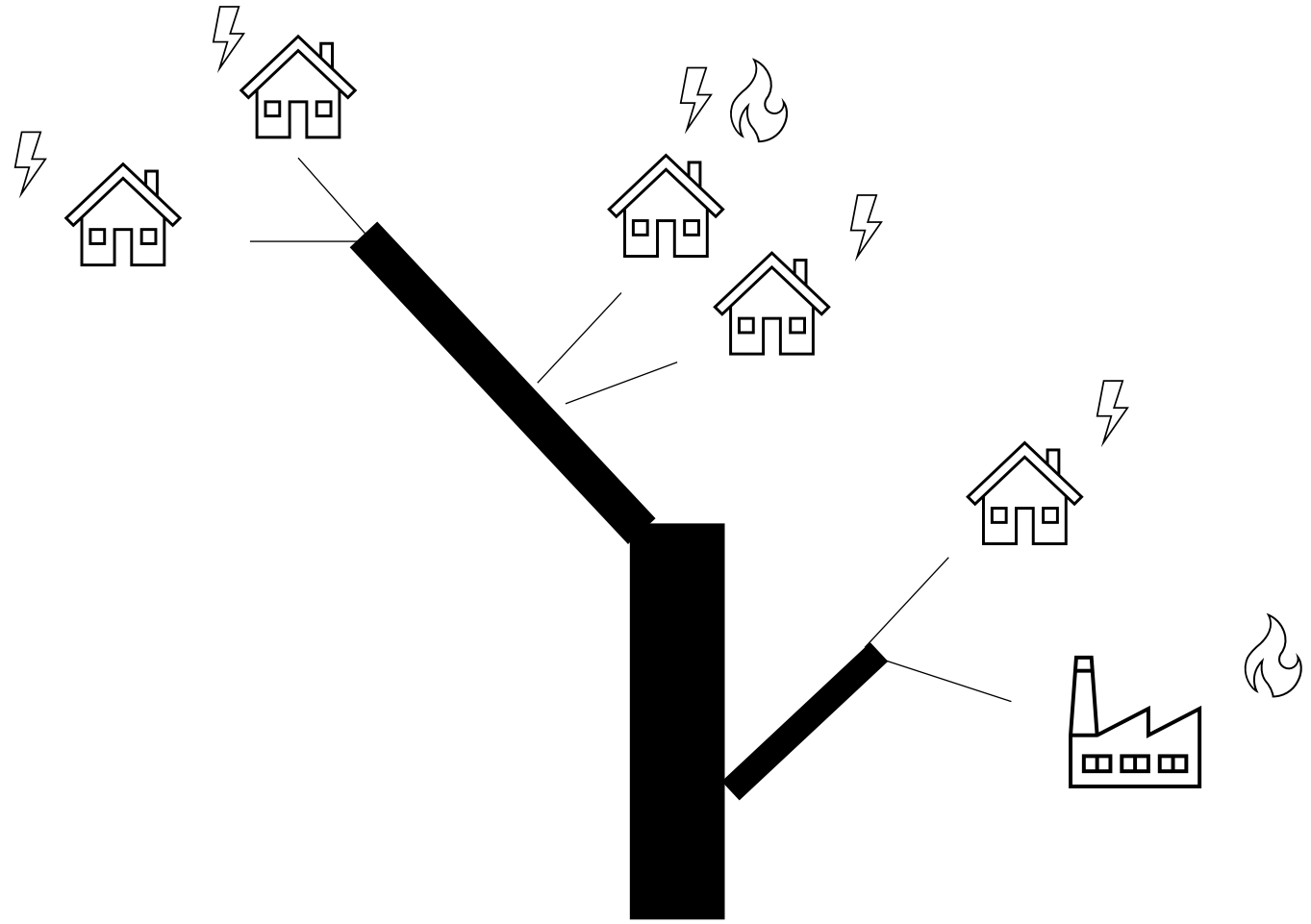
How old are our pipelines?

- 56% of CA transmission pipelines are at least 50 years old
- Some are nearing the end of their useful lives
- OIR a chance to create a framework for weighing the trade-offs between cost and the need for repair and replacement in a context of declining gas use

Miles of California Gas Transmission by Decade Installed, 2019 (PHMSA)



Pruning the Gas System



The Future Wind and Solar Plus…?

Non-gas Alternatives

- Pumped hydro
- Compressed air storage
- ~~Nuclear~~
- Geothermal
- Thermal Energy Storage

Gas Alternatives

- Hydrogen
- Renewable Natural Gas

Q&A

- Please Type your Questions in Chat

Input on Engagement and Moving Forward

California Public Utilities Commission

Question 1

- Has your organization engaged on gas or electrification issues in past? Do you see your organization getting engaged on these issues? Are there other organizations in your community prepared to engage on these issues?

Question 2

- What actions can be the Commission take to make it easier for your CBO/community to participate in the gas planning rulemaking, and present your perspectives on the issues under consideration?

Question 3

- What are your primary concerns about gas infrastructure located in your community?

Question 4

- What are the likely barriers to electrification in the communities you represent? The need for panel upgrades, high upfront cost of electric appliances, preference for gas stoves etc. are some of the issues that have been raised.

Question 5

- Would you be interested in discussion on issues particular to your region in a separate forum?

Question 6

- If possible, provide a quick summary of what the housing stock looks like in your community. Roughly what percentage is single-family versus multi-family. During what years was most of it constructed?

Question 7

- What percentage of the residents in your community are renters versus owners?

Q&A and Discussion

California Public
Utilities Commission

Ways to get involved

- Attend a public meeting or webcast
  - Gas OIR Workshop March 29, 2022
- Become a party to the proceeding (R.20-01-007) or follow the proceeding to receive documents
- Obtain informational materials and handouts

Appendix

Overview of CPUC Decision-making

California Public
Utilities Commission





Five Governor-appointed Commissioners serve staggered six-year terms

Regulatory authority includes rates and services of electricity and gas companies

CPUC Meetings

- Regularly scheduled public meetings where commissioners meet to discuss and vote on proposed policies, rules and other issues
- The public is encouraged to participate and provide comments

What is the CPUC

The CPUC is a California state agency that regulates services and utilities including:

- Electricity
- Natural Gas
- Telecommunications
- Water
- Rail and Transportation

The CPUC protects consumers, safeguards the environment and assures Californians' access to safe and reliable utility infrastructure and services

CPUC Proceedings

CPUC code

Rules of practice and procedure

Administrative Law Judge