

An Invisible Disaster: The 2015 Aliso Canyon Gas Leak

ABSTRACT

Natural gas is a reliable and critical source of energy in the United States. However, it is 85-95% methane by composition, a greenhouse gas that is 28-34 times more potent than CO₂.¹ Thus, when there is a natural gas leak, the major concern is stopping the leak and addressing the effects of released methane on both humans and the environment.

This case study will examine the worst natural gas leak in U.S. history, the 2015 Aliso Canyon gas leak, and the sequence of events that led up to not just the sealing of the leak, but also settlements and laws that followed as a result. It will be important to study not just the final outcomes of this incident, but rather the process and how SoCalGas, city and state regulators, residents, and other community members reacted and resolved the emergency over a nearly six-year period.

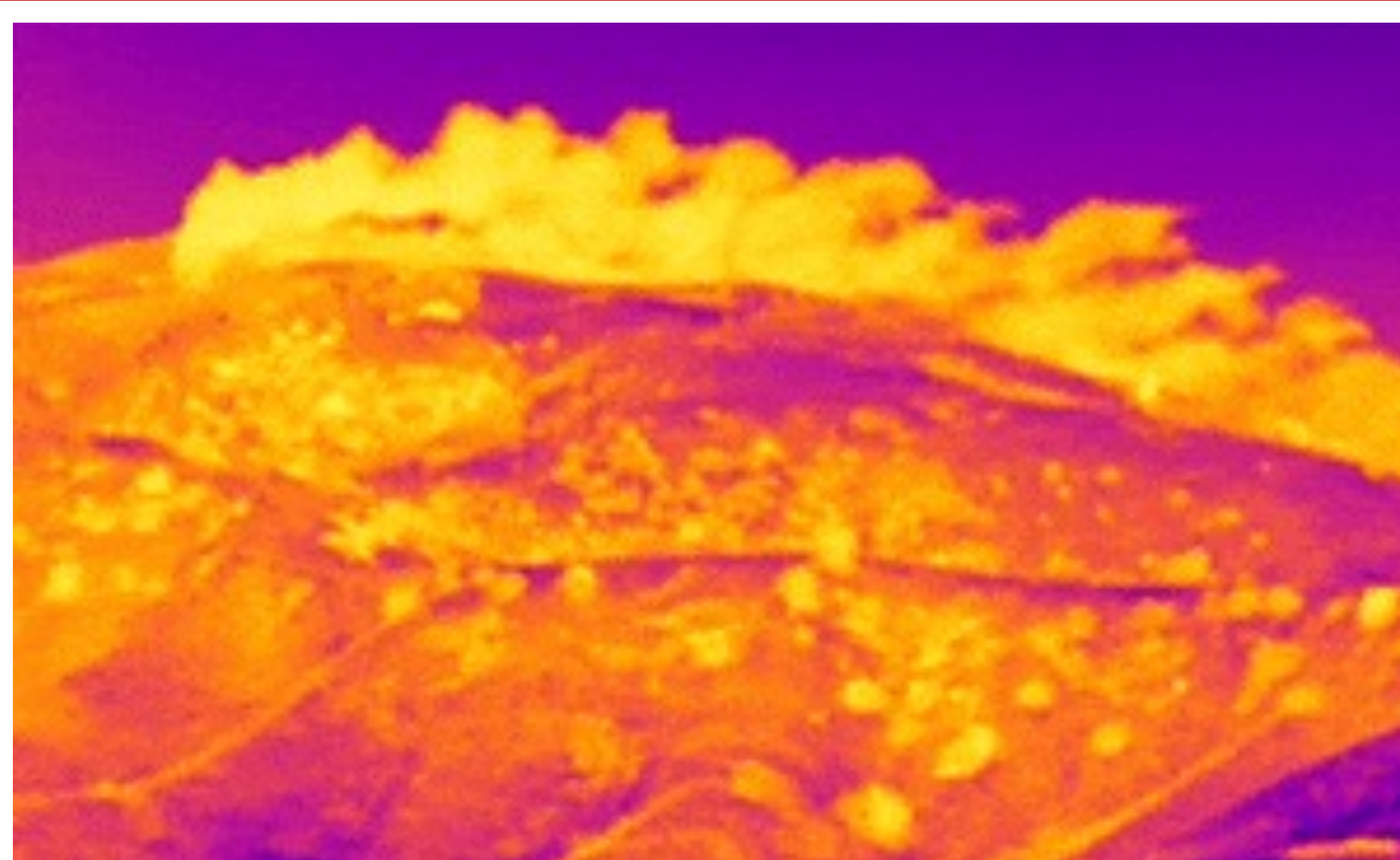


Figure 1: Infrared imaging of uncontrollable methane leaking from the gas storage facility (Copied from ABC²)

STAKEHOLDERS

LOCAL RESIDENTS

- The 8,000+ residents were not notified until a week after the blowout. Many reported headaches, bloody noses, and nausea, and requested relocation.³ Schools were relocated and businesses closed for good.

SO CAL GAS COMPANY

- SoCalGas struggled for nearly four months to seal the leak. Refusing to accept blame from residents, they insisted on continuing operations at the faulty facility.

GOVERNMENT OFFICIALS

- Siding with residents, local and state officials declared a state of emergency and introduced stricter safety measures. Relocation assistance was also mandated.

SCIENTISTS and ENVIRONMENTALISTS

- Warned residents of long-term exposure to carcinogens (benzene) and irritants (mercaptan).⁴
- Protested against expanding capacity and urged for permanent closure of the gas facility.

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BACKGROUND

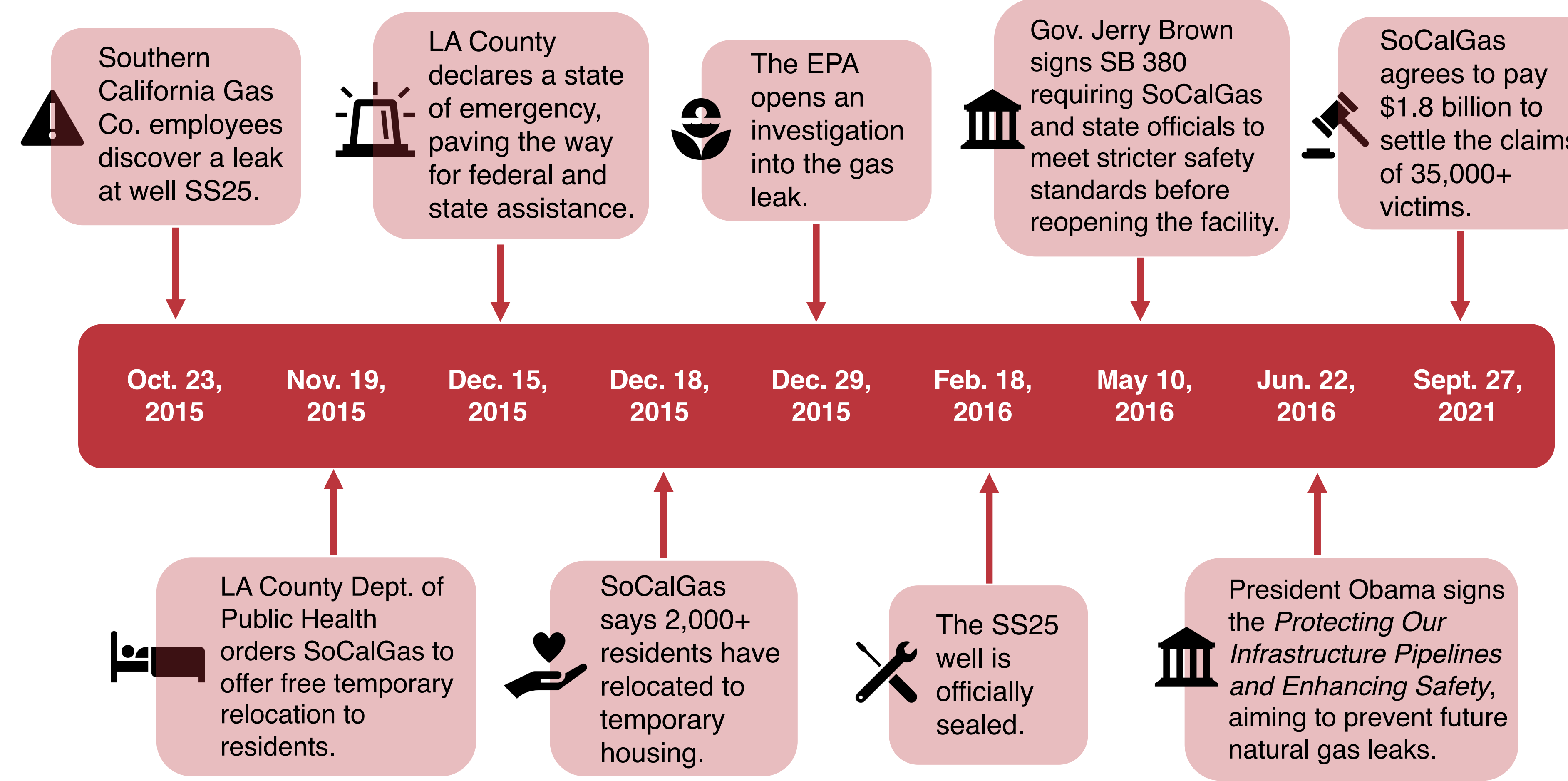


Figure 2: Time of events from day of leak to settlement (Data from Daily News^{5,6})

DETAILS AND DATA

- 440,000 cars**
The number of cars, running for a year, that would produce the same amount of emissions
- Double emissions**
The magnitude of the leak compared to all power plants and oil & gas facilities in L.A.
- 25%**
The share of California's methane emissions from the SoCalGas leak

Figure 3: Magnitude of the leak in equivalencies (Data from Journal of Sustainable Energy Engineering⁷)

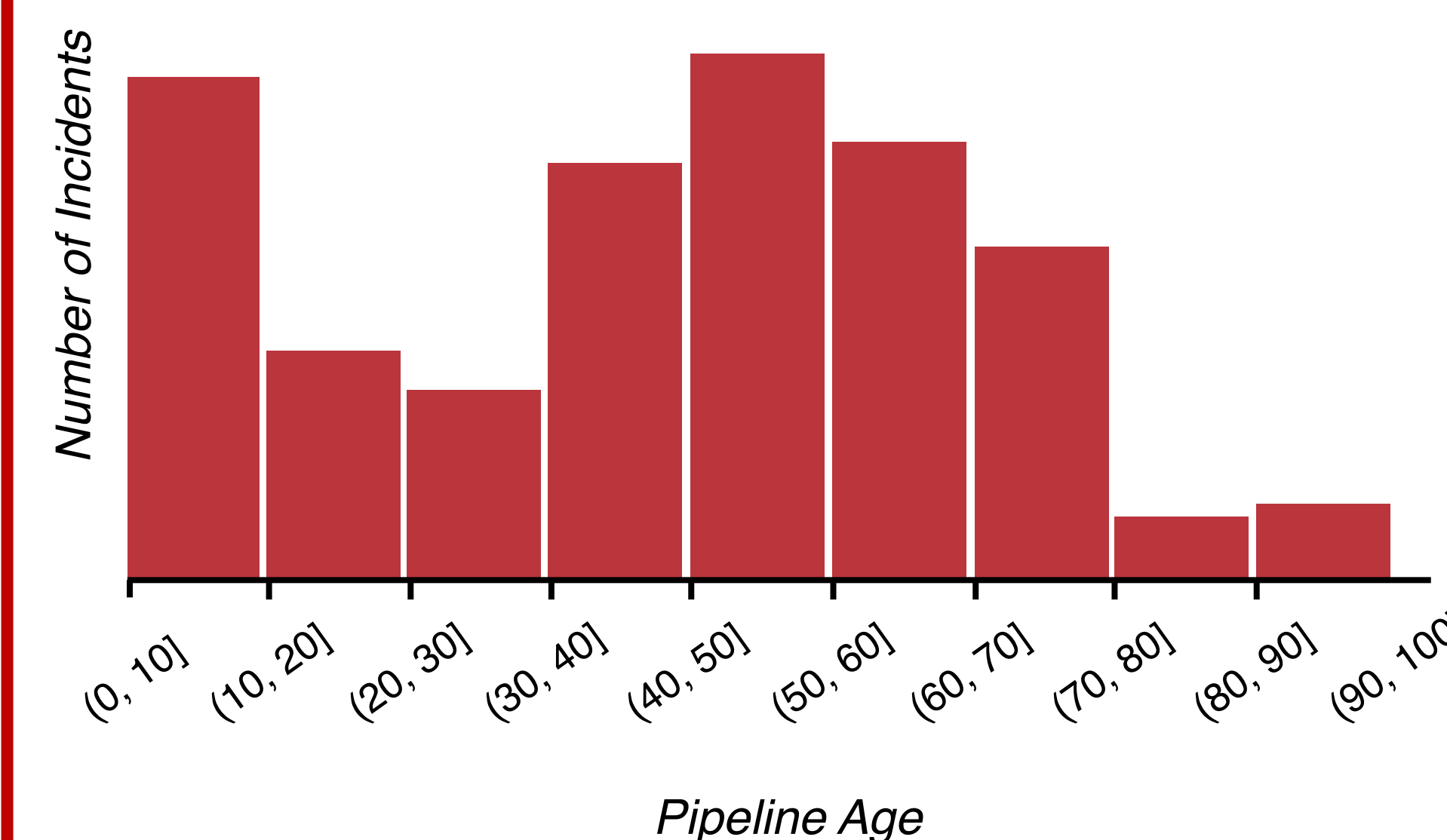


Figure 4: Pipeline Age Histogram and Line Incidents 1/1/2010 to 11/14/2018 (Data from FracTracker⁸)

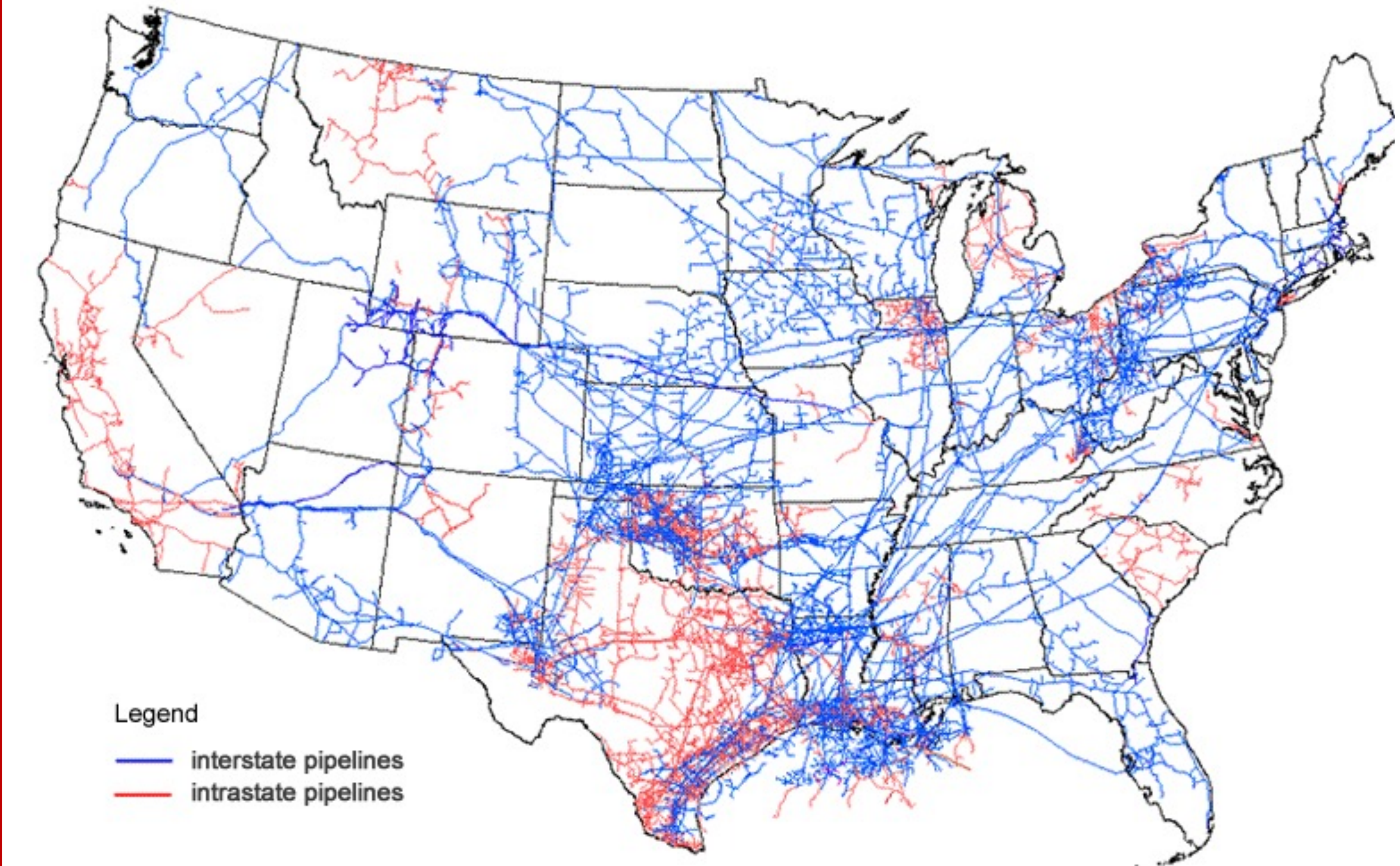


Figure 5: Map of U.S. interstate and intrastate natural gas pipelines (Copied from U.S. EIA⁹)

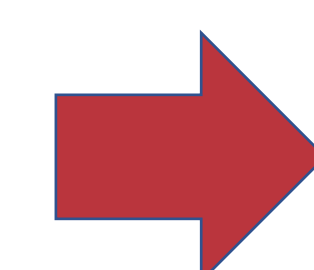
TEACHING THE CASE

LEARNING OBJECTIVES

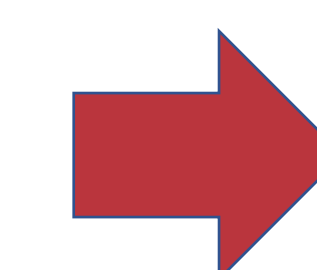
- Primary:** Understand stakeholder management and how different parties respond to critical, time-sensitive natural disasters like the Aliso Canyon leak.
- Secondary:** Understand the severity of damage that natural gas leaks can cause, and how to collaborate with stakeholders to preventing similar disasters in the future.

LESSON PLAN

Read **pre-class assignment** and answer **questions**



Split class into **4 stakeholder groups:** residents, business owners, SoCalGas, and government officials



Each stakeholder **brings argument for best course of action** to address the leak and who to hold **liable** (moderated by government officials)

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