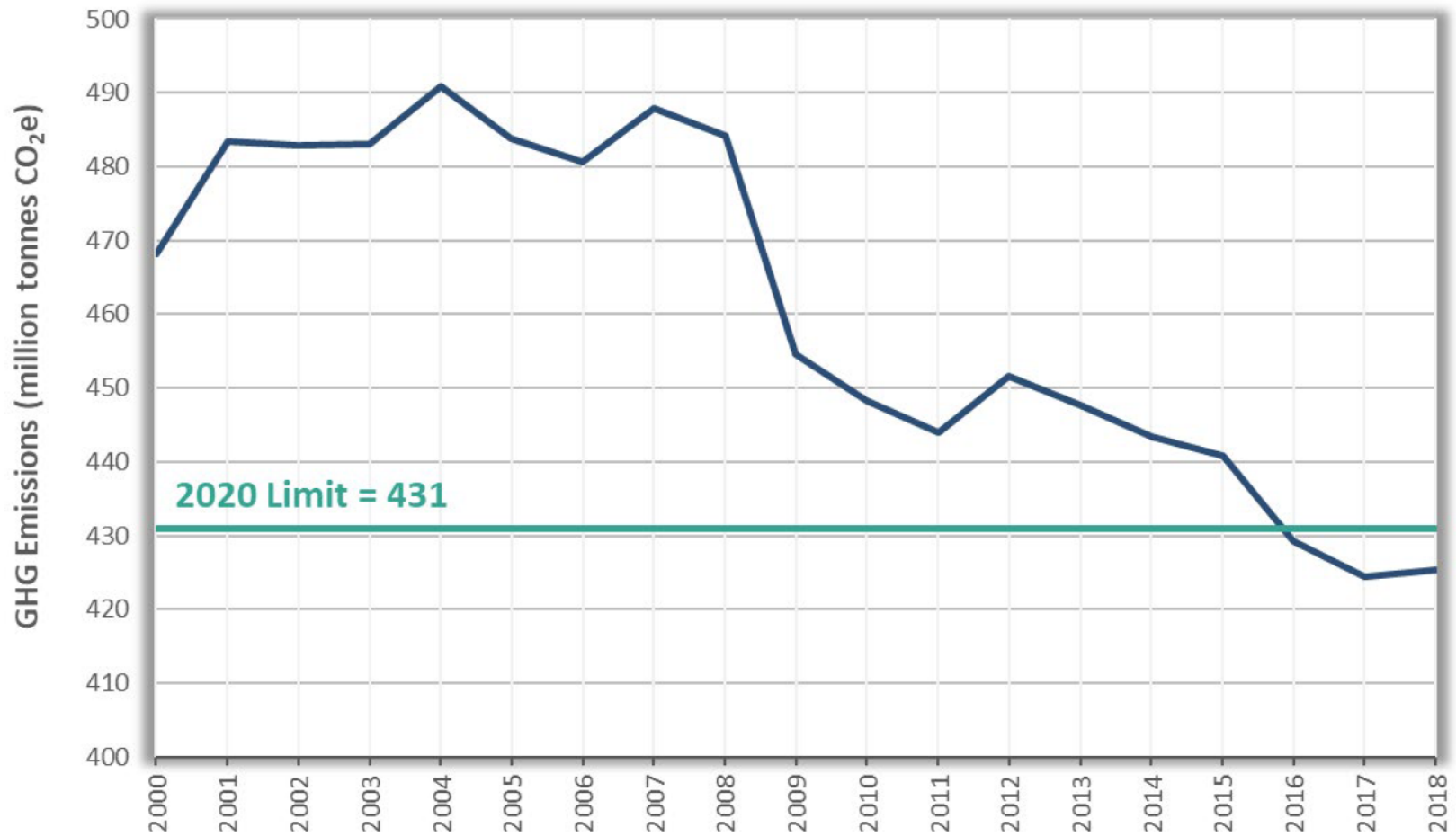




Decarbonization and Natural Gas Rates: Cost-effective, Equitable Paths to Zero Carbon Buildings

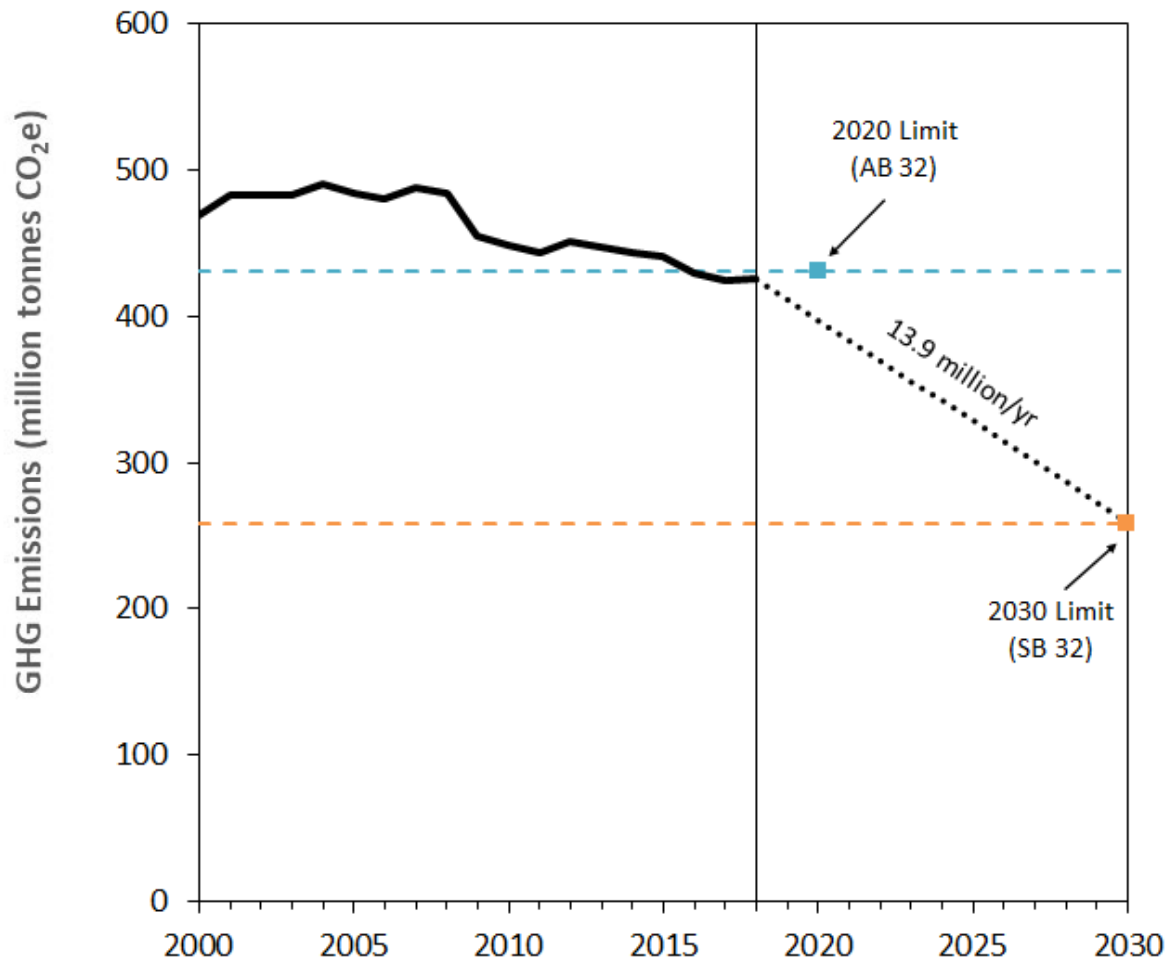
Alison Ong, Michael Mastrandrea, and Michael Wara | June 2021

CALIFORNIA'S EMISSIONS PROGRESS



Source: ARB 2020 GHG Trends Report

CALIFORNIA'S EMISSIONS PROGRESS



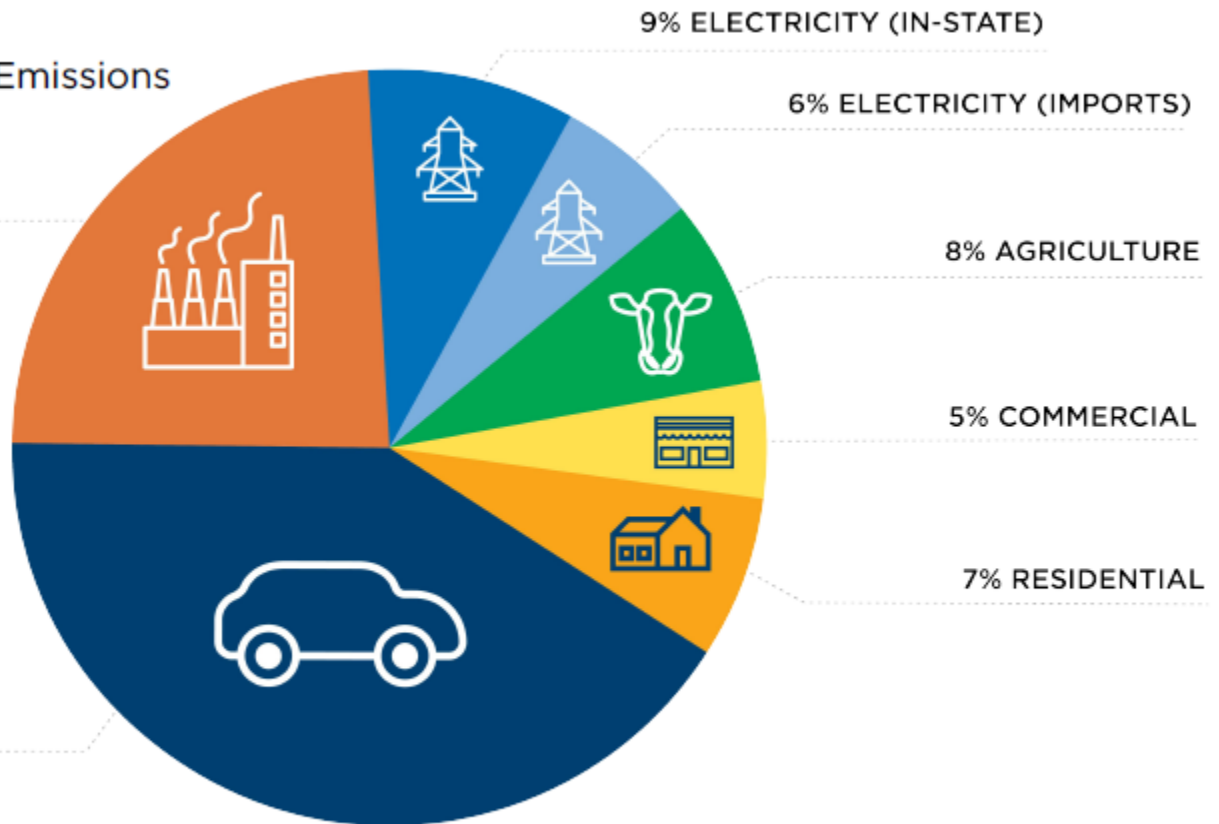
CALIFORNIA'S EMISSIONS BY SECTOR

California's

2018 Greenhouse Gas Emissions

24% INDUSTRIAL

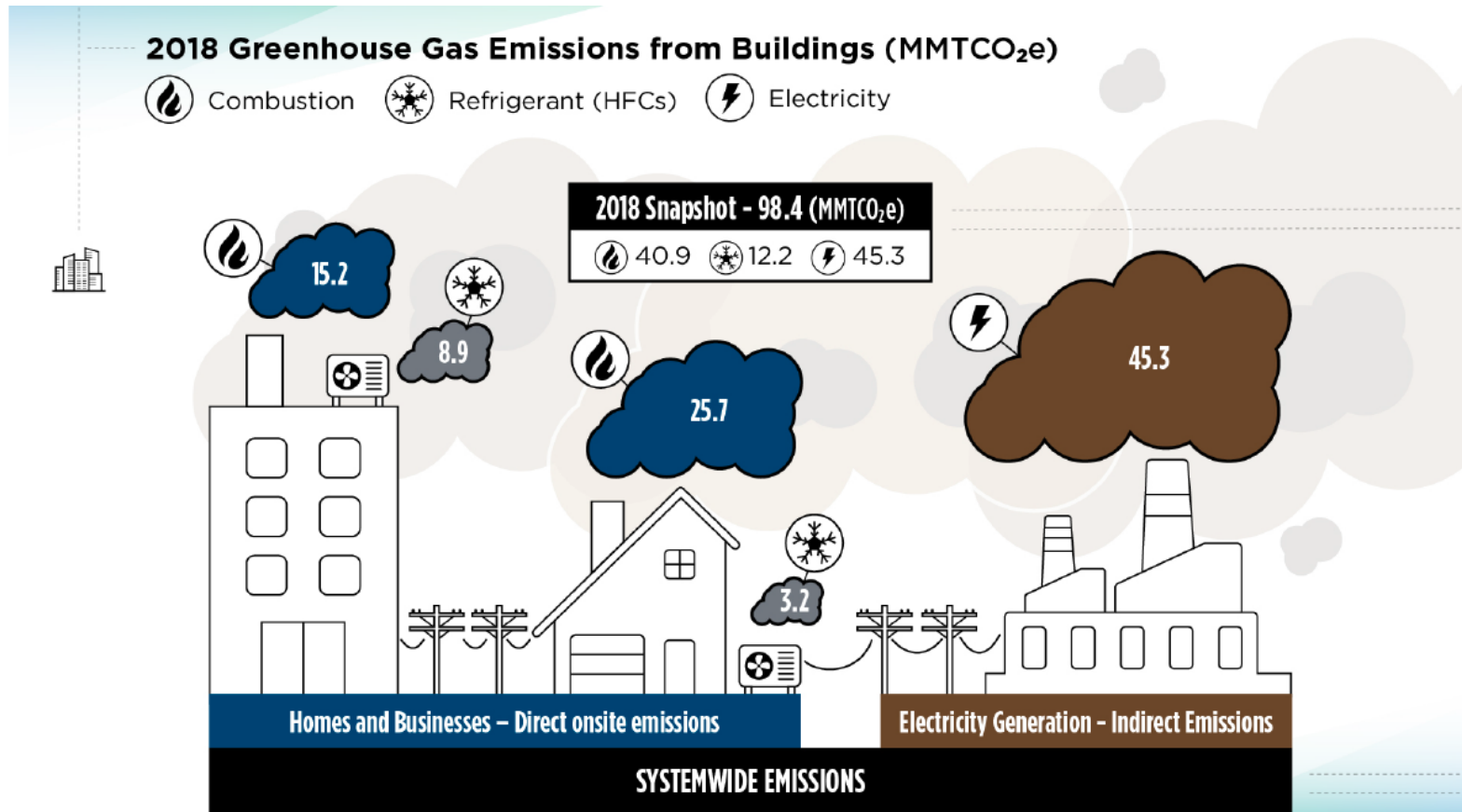
41% TRANSPORTATION



Source: California Air Resources Board

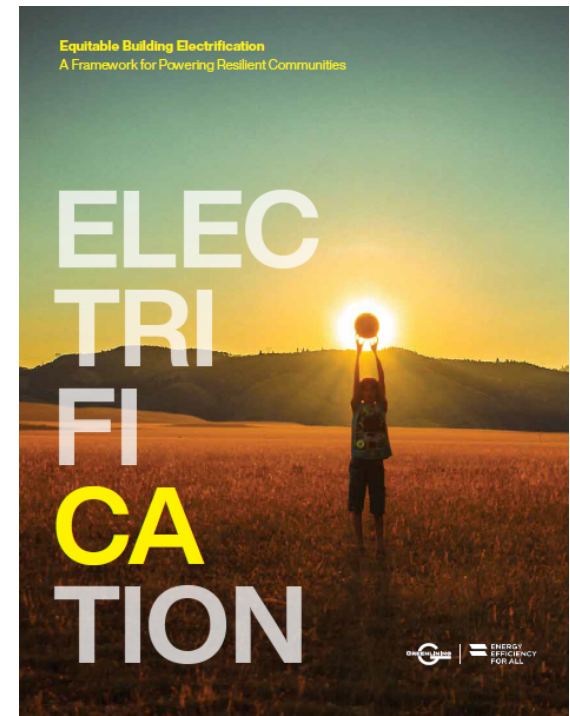
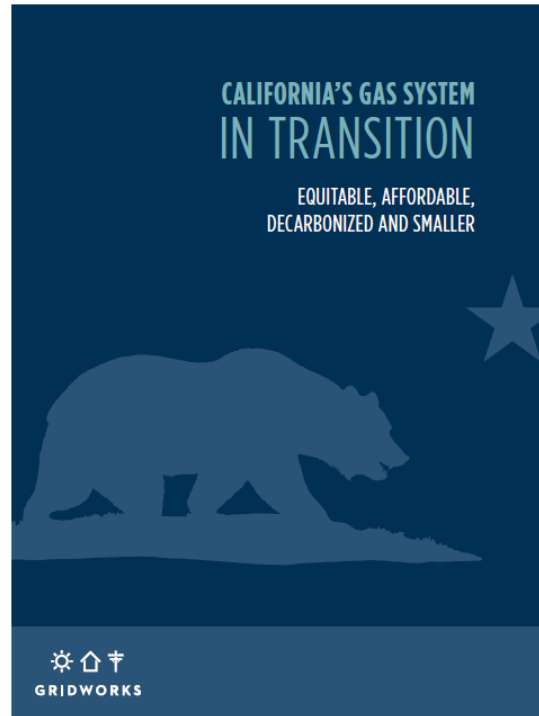
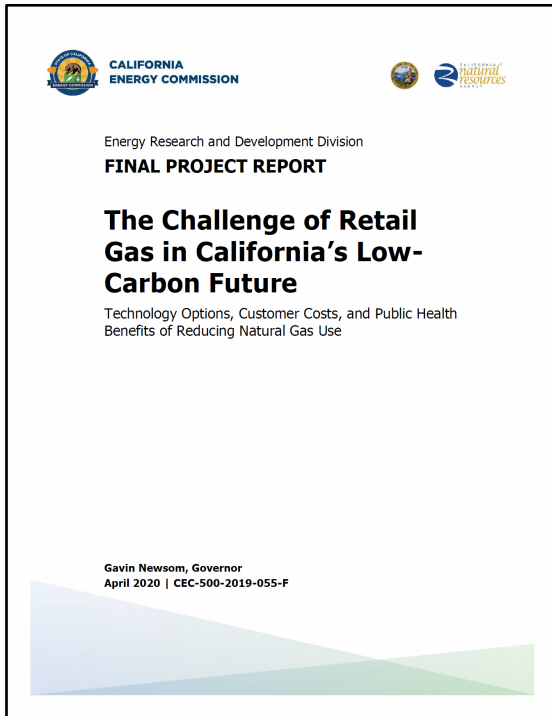
Source: 2021 SB 100 Joint Agency Report

BUILDING DECARBONIZATION AND NATURAL GAS

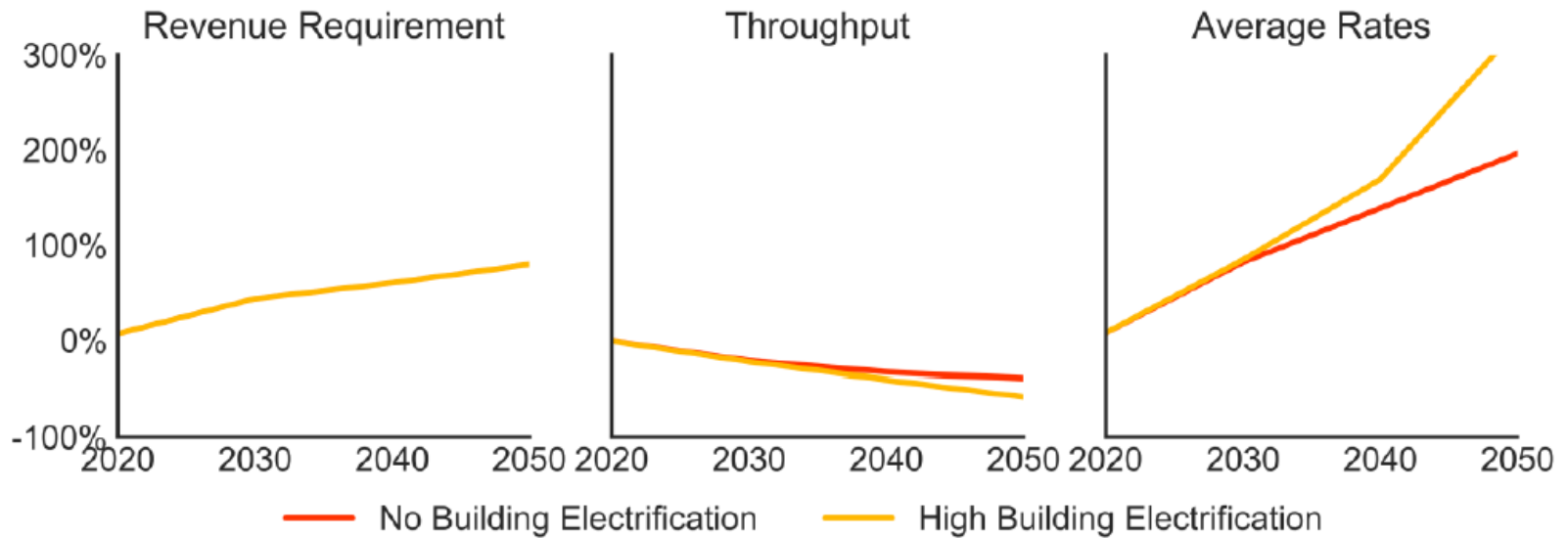


Source: 2021 CEC Draft California Building Decarbonization Assessment

BUILDING DECARBONIZATION AND NATURAL GAS



NATURAL GAS RESIDENTIAL RATES



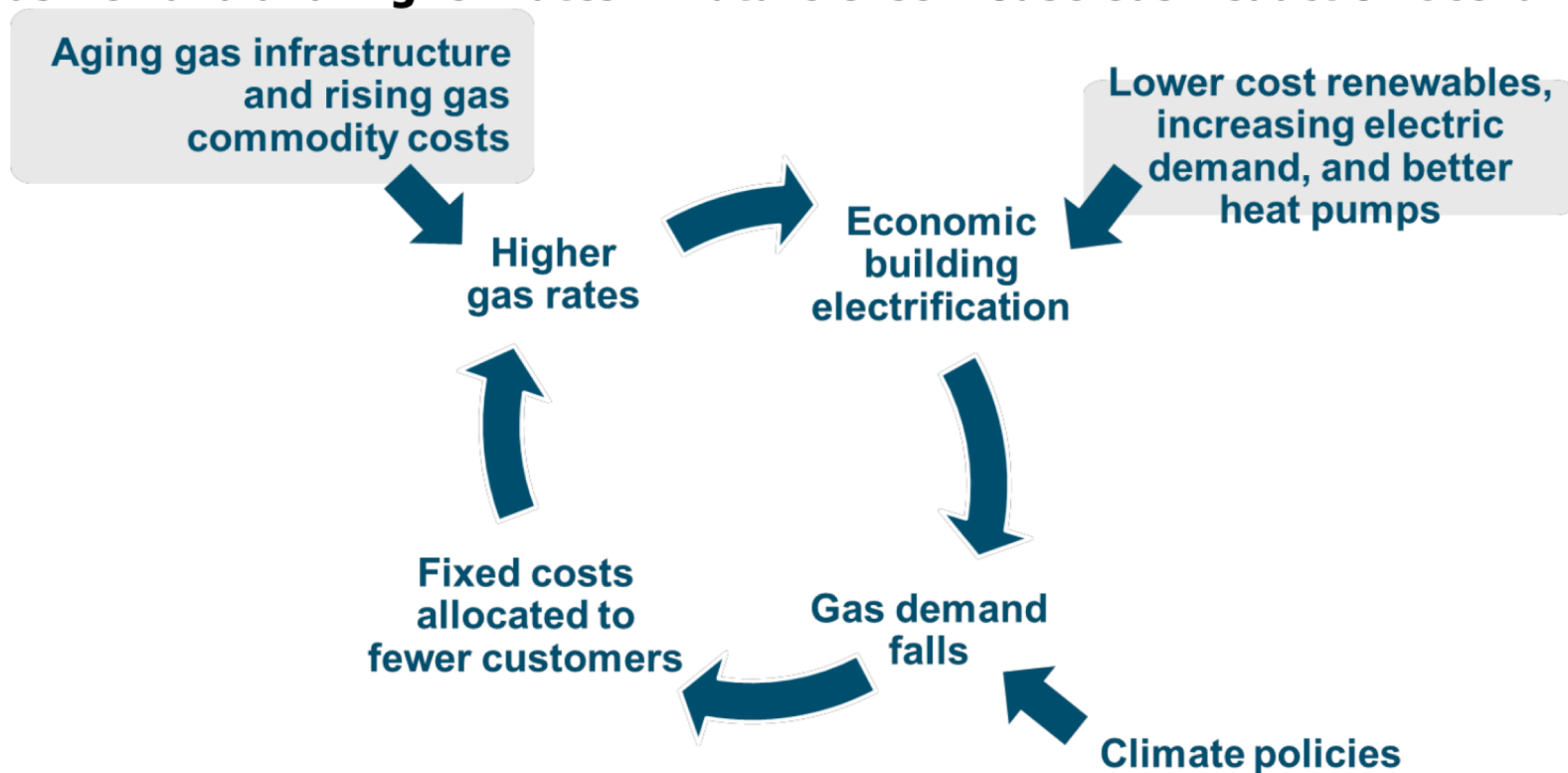
Source: E3/CEC Challenge of Retail Gas Final Report

COSTS REFLECT NECESSARY SAFETY INVESTMENTS



EFFECTS OF BUILDING DECARBONIZATION ON RATES

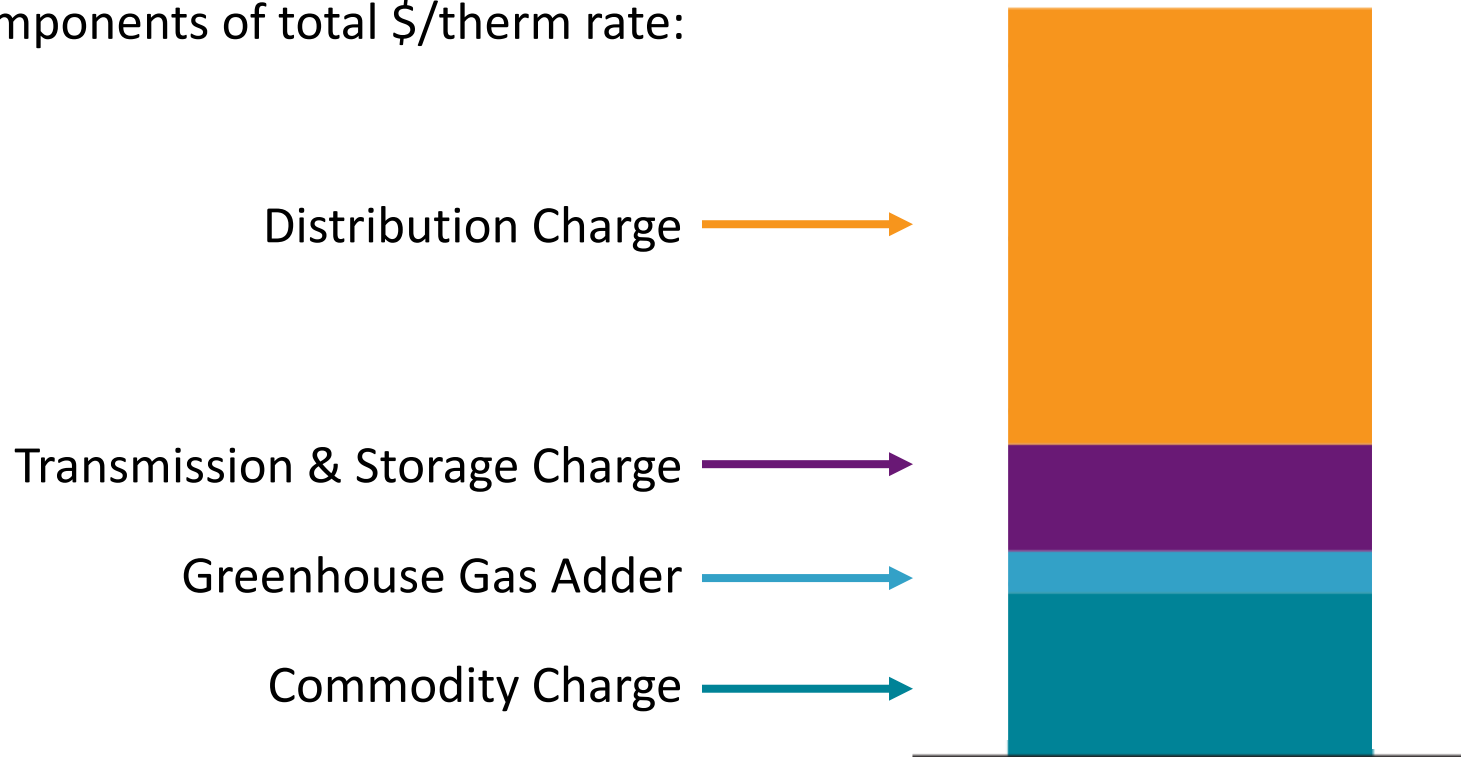
Figure ES-1: Outside Forces in the Natural Gas Delivery Sector Could Lead to Lower Gas Demand and Higher Rates in Future Greenhouse Gas Reduction Scenarios



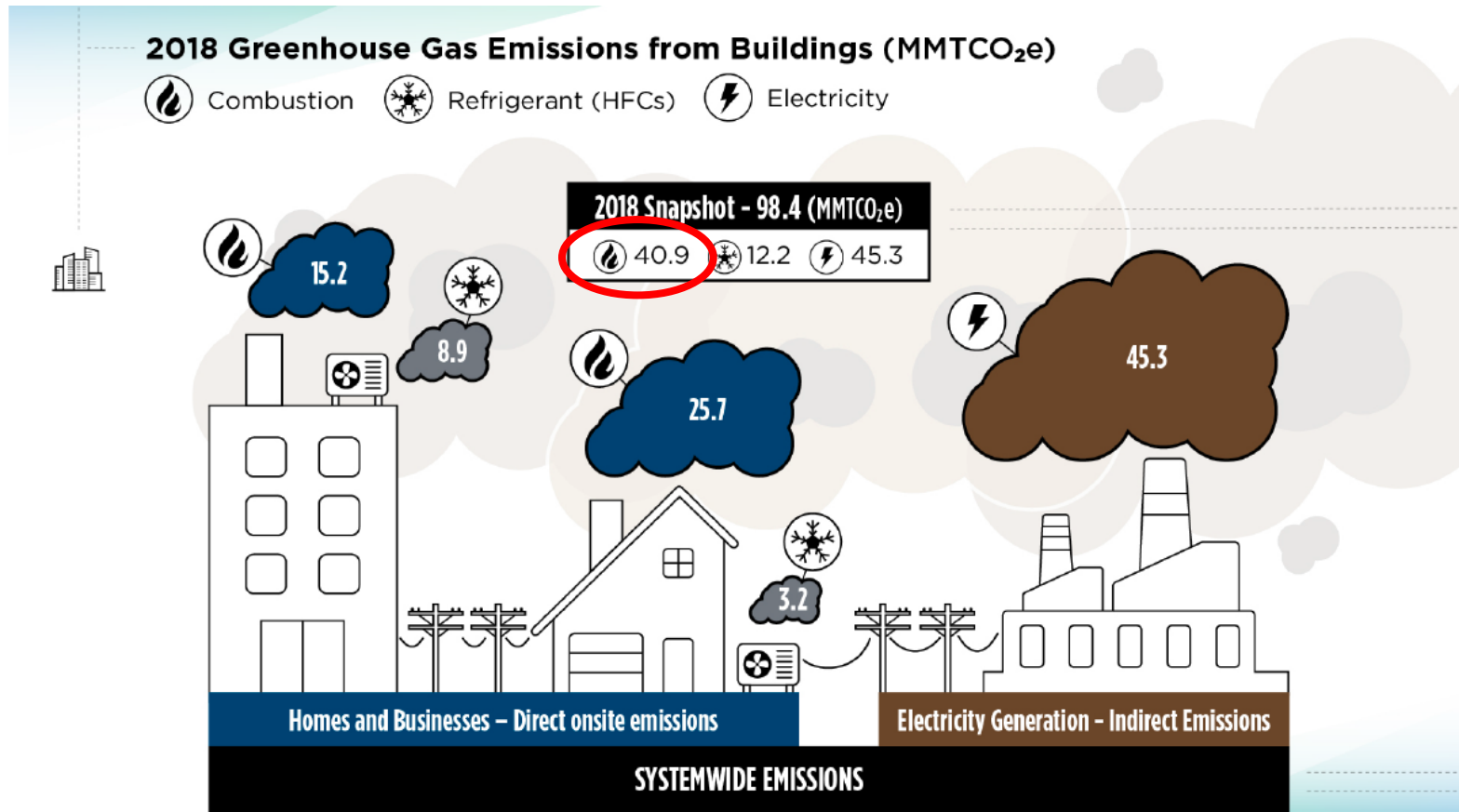
Source: E3/CEC Challenge of Retail Gas Final Report

MODELING APPROACH—RATES

Four components of total \$/therm rate:



MODELING APPROACH—EMISSIONS



Source: 2021 CEC Draft California Building Decarbonization Assessment

SCENARIOS: REFERENCE CASE

No specific additional policy is undertaken to reduce natural gas usage or emissions.



SCENARIOS: TITLE 24

Electrification incentives curb consumption from 2023-2026, a statewide moratorium on natural gas hookups in all new construction takes effect from 2026 onwards.



SCENARIOS: RNG

The concentration of Renewable Natural Gas is increased by 2% per year beginning in 2021, reaching 20% RNG by 2030.



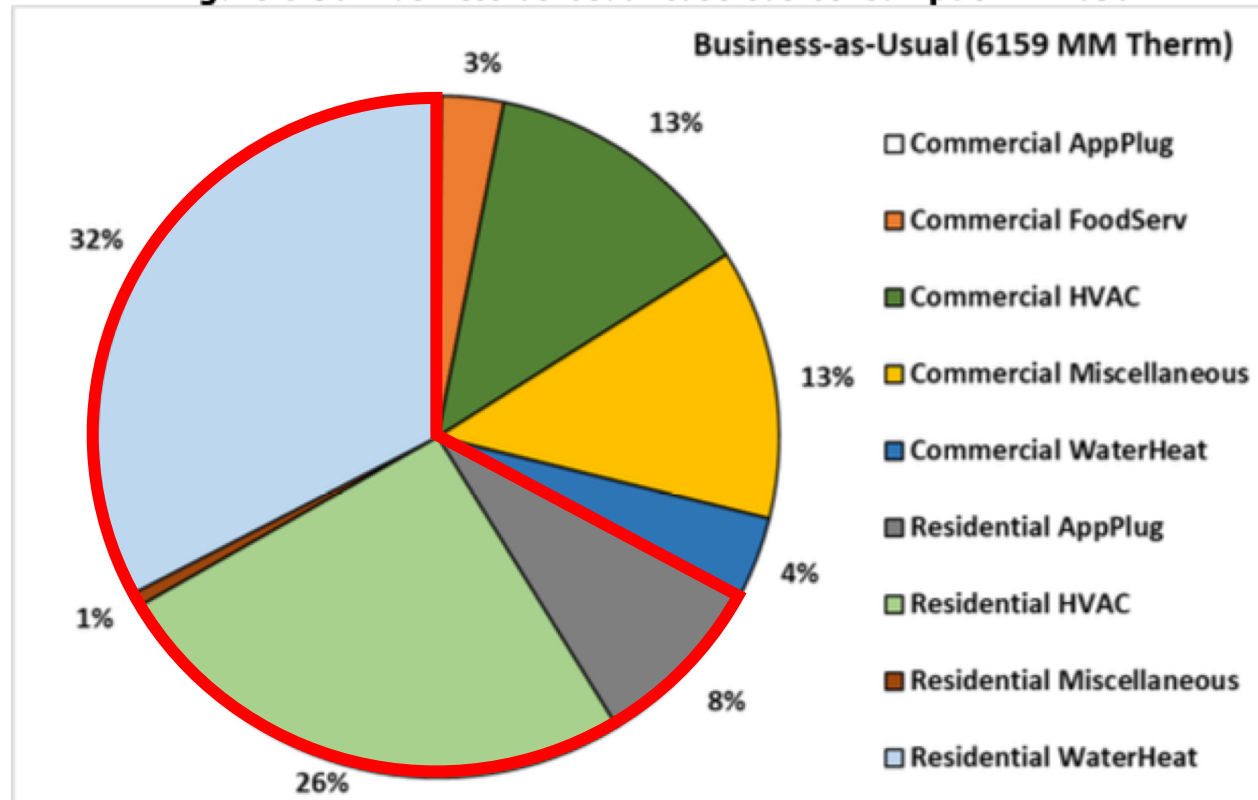
SCENARIOS: APPLIANCE BAN

Beginning in 2026, the sale of new gas-fueled appliances is prohibited, resulting in phase-in of electric equivalents.



SCENARIOS: APPLIANCE BAN

Figure C-30: Business-as-Usual Case Gas Consumption in 2030

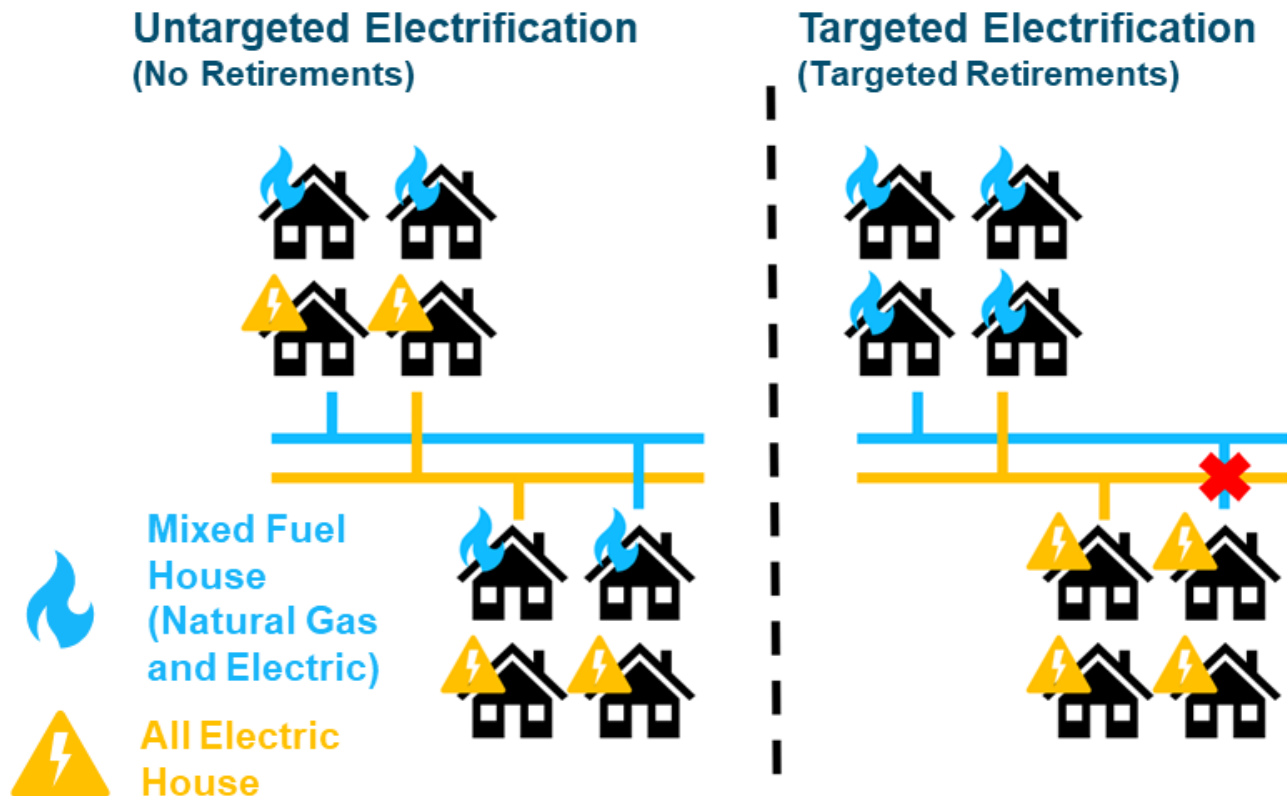


Source: CEC Staff

Source: 2021 CEC Draft California Building Decarbonization Assessment

SCENARIOS: BRANCH PRUNING

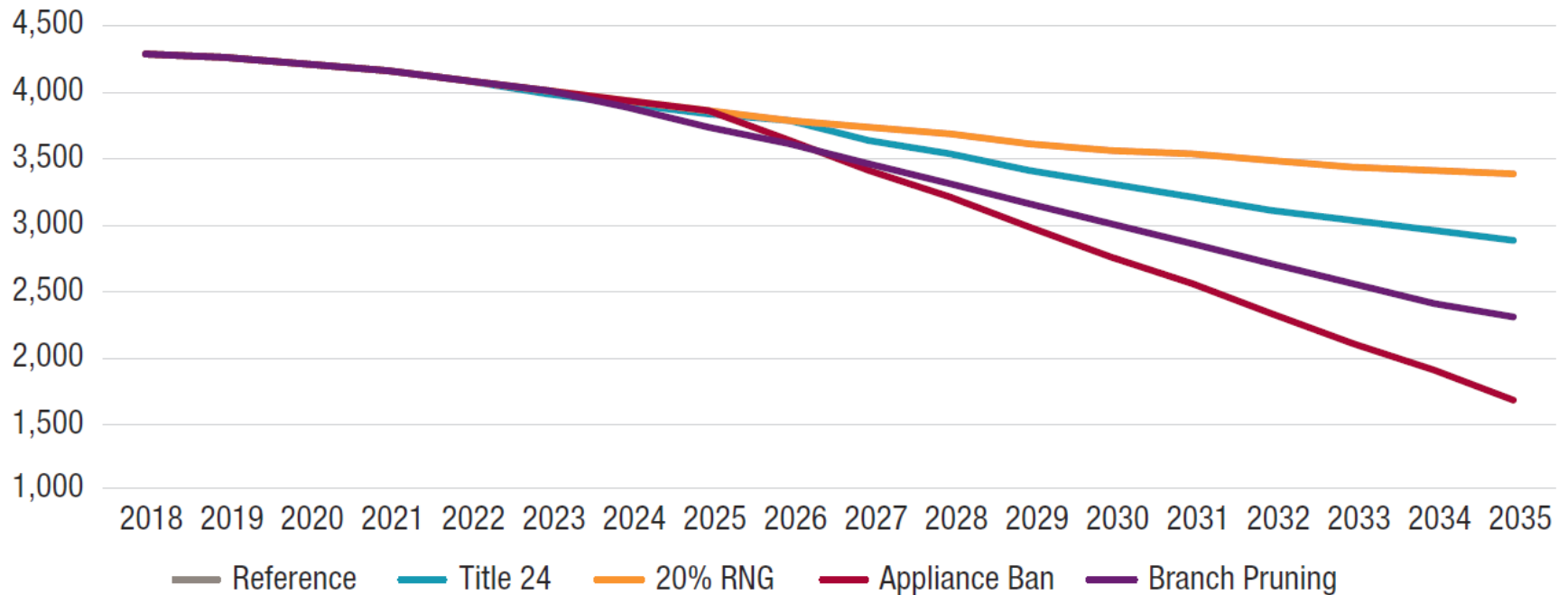
From 2023 onwards, strategic retirements of distribution infrastructure assets begin alongside targeted electrification.



E3/CEC Challenge of Retail Gas Final Report

FOUR ILLUSTRATIVE MITIGATION SCENARIOS

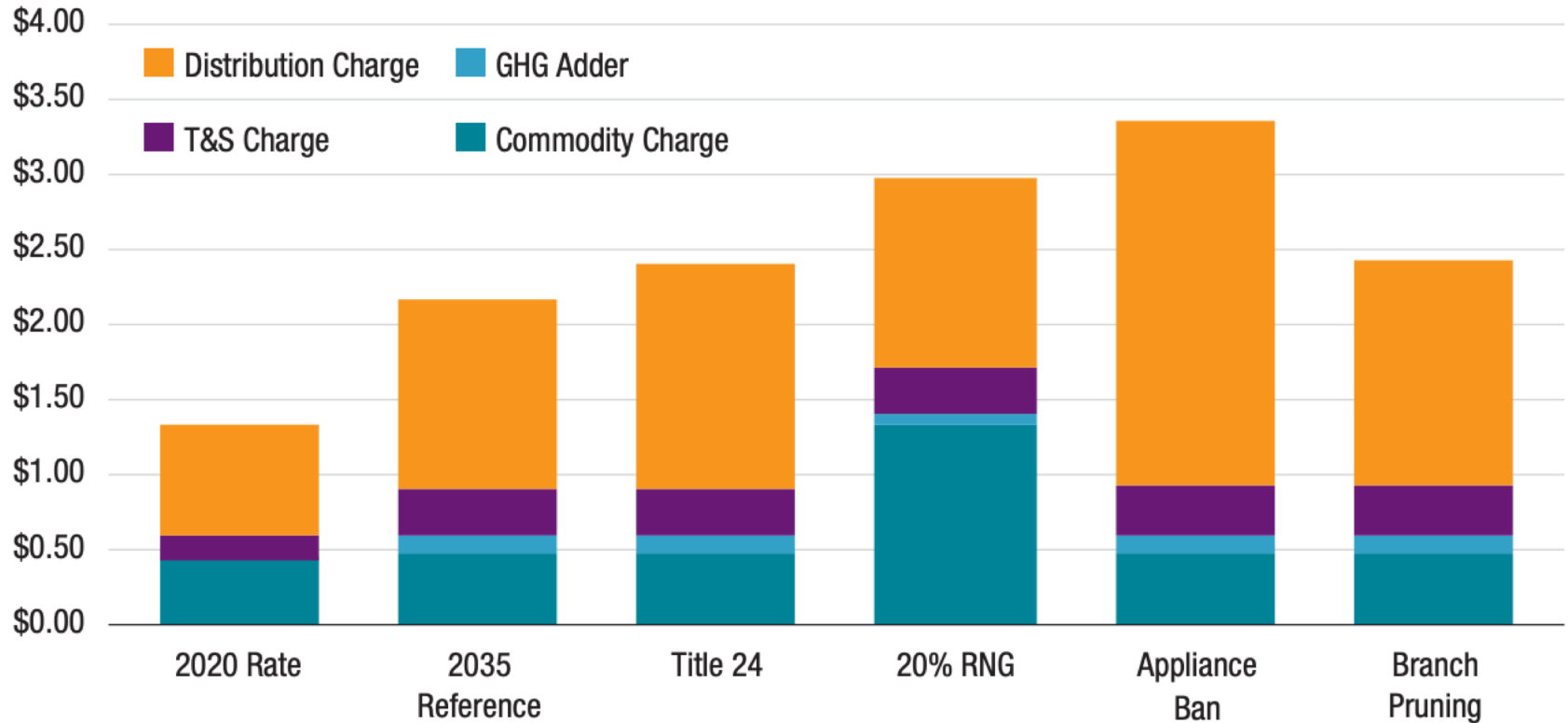
Statewide Throughput by Scenario, Millions of Therms



Source: Ong, Mastrandrea, and Wara, 2021

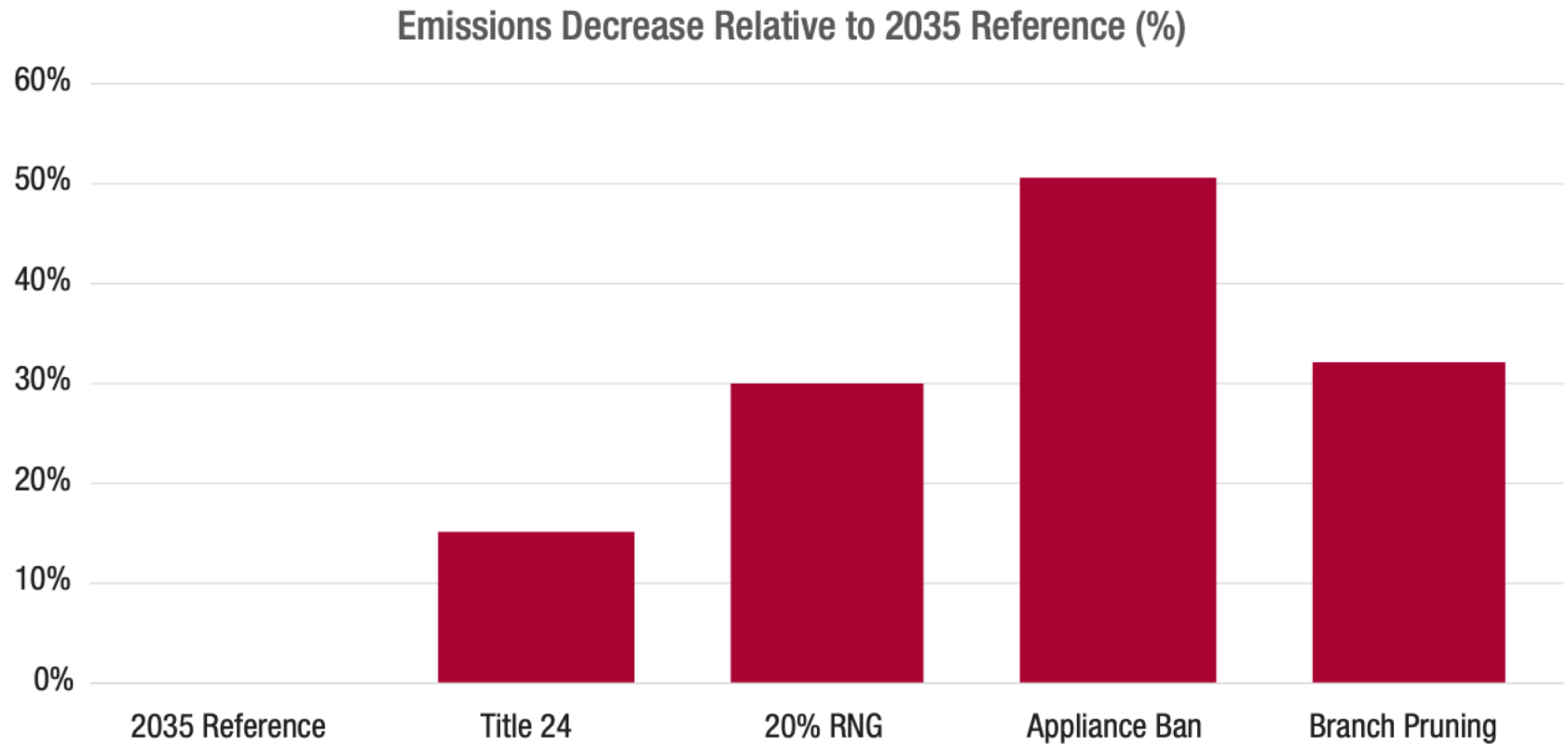
RESULTS: RATES

2035 Average Residential Rate by Scenario (\$/therm)



Source: Ong, Mastrandrea, and Wara, 2021

RESULTS: EMISSIONS

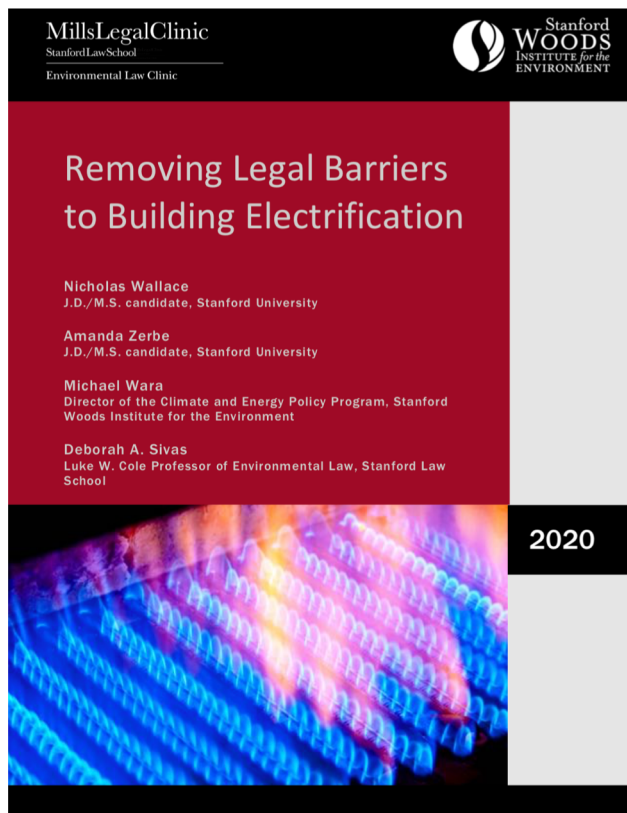


Source: Ong, Mastrandrea, and Wara, 2021

CONCLUSIONS

1. Building decarbonization policy decisions can result in large and wide-ranging impacts
2. Cost of near-term safety investments is substantial
3. Policy focused on new construction has modest impacts on rates and GHG emissions
4. Strategic electrification may enable favorable outcomes, but also entails several challenges.

LEGAL AND POLICY BARRIERS TO BRANCH PRUNING

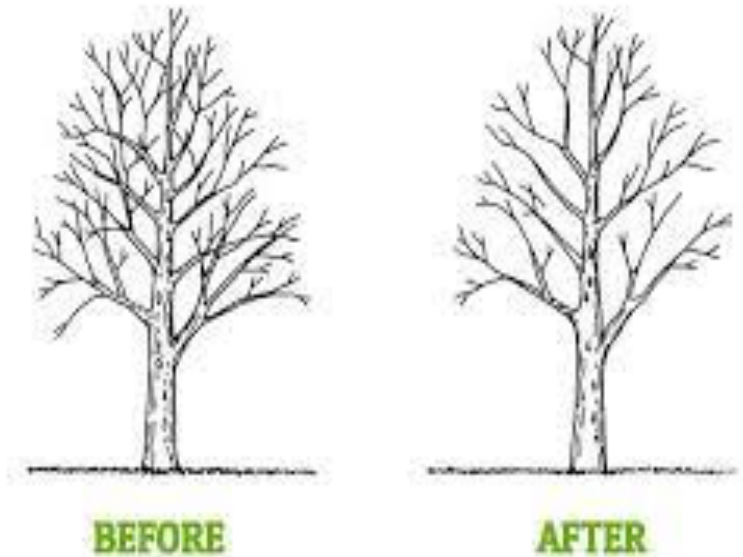


- **Co-authors: Nick Wallace, Amanda Zerbe and Debbie Sivas**
- Substitution of service
- Substantive barriers
- Procedural requirements

LEGAL AND POLICY BARRIERS TO BRANCH PRUNING

Successful branch pruning requires...

1. Substitution of alternative energy service;
2. Abandonment or removal of infrastructure;
3. Finality for utilities



SUBSTANTIVE ISSUES: THE OBLIGATION TO SERVE

- Utilities are obligated to provide just and reasonable service to all customers (Ca. Util. Code Sec. 451).
- When can a utility substitute one service for another?
- What about holdouts?



Golden Gate Transit – buses and ferries

PROCEDURAL ISSUES: THE RIGHT OF DUE PROCESS

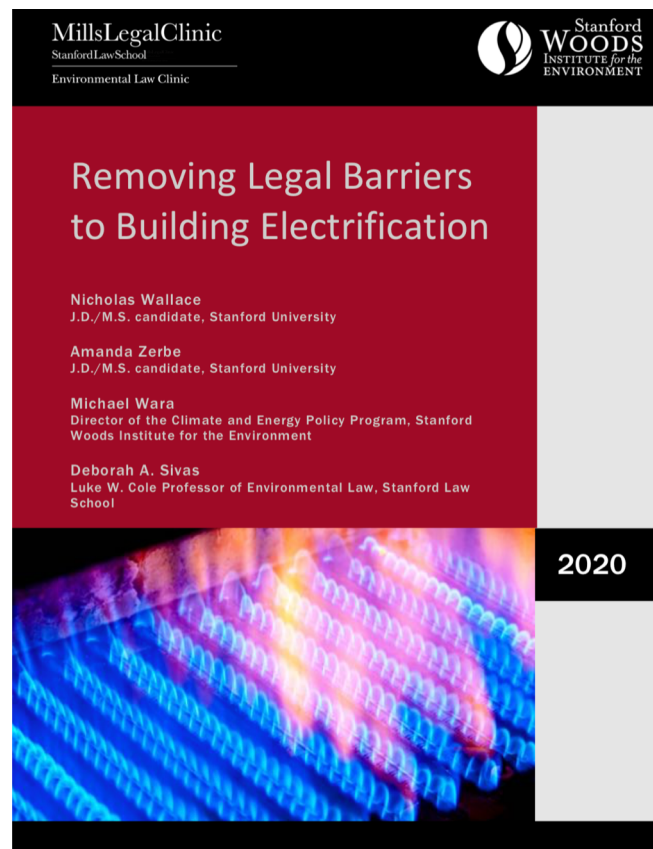
- Utility service is essential;
- Constitutional protections on deprivation/alteration of essential government services;
- Norm of participatory, community-driven decision making on energy transition.



San Joaquin Valley Energy Pilots, 2018

POLICY PROPOSALS

1. Clarify CPUC clear statutory authority to manage decarbonization including electrification;
2. Clarify CPUC authority regarding changes to utility service territory;
3. Clarify utility option to substitute electric for natural gas service.



CONCLUSIONS

- Transitioning from mixed fuel to all electric requires legal certainty;
- Authority is (somewhat) unclear;
- Even with clear legal authority, attention must be paid to due process rights;
- **Getting substance and process right is key to a just transition!**

