California's Affordability Challenge: Structural Drivers and Policy Solutions (A Professional Viewpoint in 9 Figures)

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Overview

California IOU rates dwarf western peers. PG&E's 2024 baseline rate of ~40¢/kWh is 60–80% above utilities like Idaho Power (8.9¢), Nevada Power (15.1¢), and Arizona Public Service (12.9¢) (Singh, Ong & Sud, 2025).

Price growth has diverged sharply. Real residential prices rose 37–76% across California's three IOUs from 2016–2024, while major western utilities saw flat or single-digit changes (Singh, Ong & Sud, 2025; Borenstein et al., 2021).

California is a national outlier. Its 2019–2024 retail price increase of 6.2¢/kWh was more than double any other state's (Wiser et al., 2025).

Investor-Owned Utilities (IOUs). IOUs supplied ~40% of California's retail electricity demand in 2022, alongside POUs (25%), CCAs (23%), and other providers (14%) (EIA, 2023).

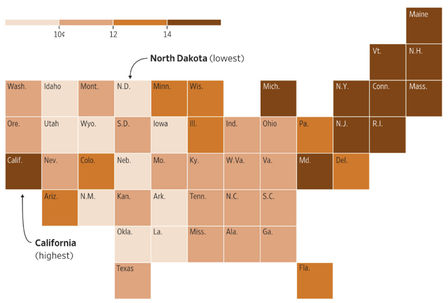

Fig. 1: Average Electric Price for all customer types, ¢/kWh (2024)
Source: WSJ, Dec 2025

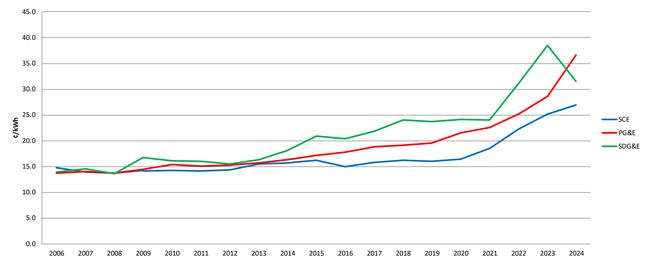

Fig. 2: Bundled System Average Rate, ¢/kWh (2006-2024)
Source: CPUC Historical Electric Cost Data, 2025.

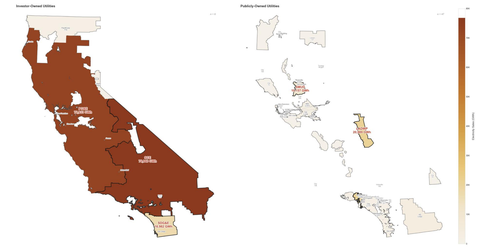

Fig. 3: California Electric Utility Service Territories and Electric Sales (GWh) (left: IOUs, right: MOUs)
Source: CEC data (2023)

Structural Drivers of Electric Rate Increases

Capital rate base has nearly tripled, spreading costs over fewer bundled kWh. Combined IOU rate base grew from $25B (2006) to $89B (2023). Meanwhile, PG&E's bundled sales fell 60% (73.7→29.8 TWh, 2015–2022) as customers departed to CCAs and DA. (CPUC; EIA, 2023).

T&D O&M spiked post-wildfires. PG&E's T&D O&M rose 4-5× after the 2018 Camp Fire, compared to 2010 baseline (Singh, Ong & Sud, 2025).

Shareholder returns recovered; ratepayers absorbed wildfire costs. PG&E's ROE dropped to -35% post-Camp Fire but rebounded to 7.4% by 2023 - while real residential rates rose 37% over a similar period (*CPUC Historical Electric Cost Data*).

Customer departure compounds the affordability spiral. PG&E's CCA load surged 10× (3.6 to~35.2 TWh, 2015–2022) while bundled load halved. Departing customers still use IOU wires, but remaining bundled customers face rising fixed costs (EIA, 2023).

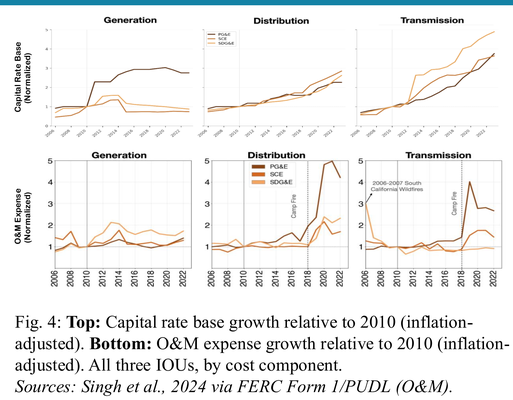

Fig. 4: **Top:** Capital rate base growth relative to 2010 (inflation-adjusted). **Bottom:** O&M expense growth relative to 2010 (inflation-adjusted). All three IOUs, by cost component.
Sources: Singh et al., 2024 via FERC Form 1/PUDL (O&M).

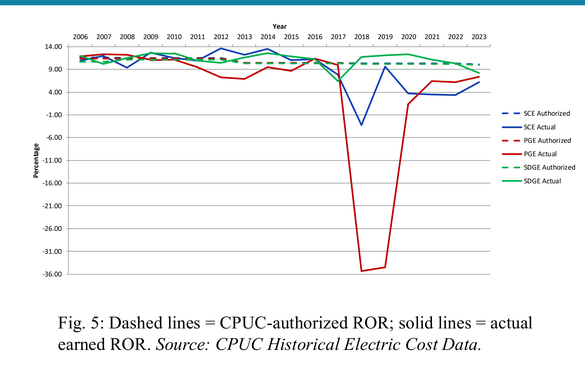

Fig. 5: Dashed lines = CPUC-authorized ROR; solid lines = actual earned ROR. *Source: CPUC Historical Electric Cost Data.*

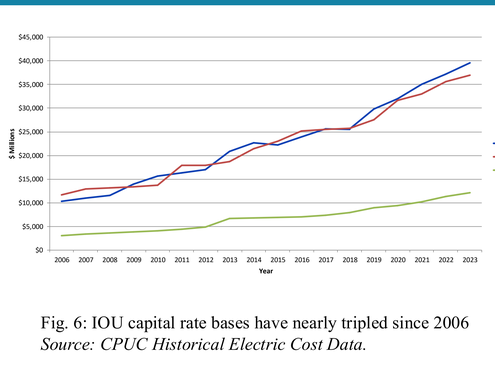

Fig. 6: IOU capital rate bases have nearly tripled since 2006
Source: CPUC Historical Electric Cost Data.

Outcome: Worsening Residential Electric Affordability Ratios (ARs)

Low-income affordability burdens are 3-5x those of median-income households. Households in the 20th income percentile in PG&E territory spend ~7% of their total annual income (post-rent), on average, on electric utility bills. Many low-income households pay 15–20% of income on electric bills, with inland/hotter climate zones hit hardest.

Affordability Ratios (ARs) will likely worsen for all households. Households in the 50th income percentile (median income) in PG&E territory spend ~2% of total annual income on electric utility bills - expected to worsen with electrification and climate change impacts.

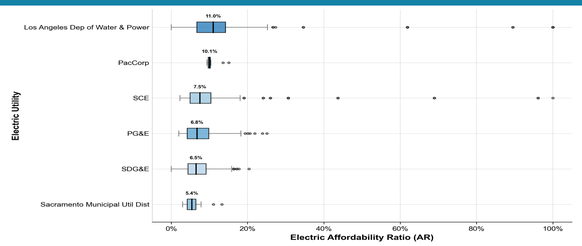

Fig. 7: Electric Affordability Ratio (AR20) by Utility (Median AR represented in **bold**). *Source: CPUC Annual Affordability Report 2024.*

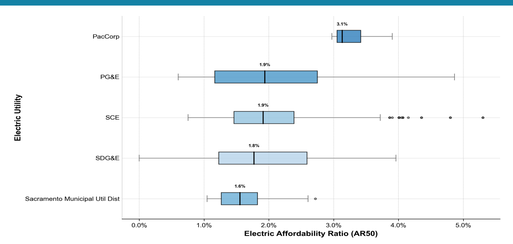

Fig. 8: Electric Affordability Ratio (AR50) by Utility (Median AR represented in **bold**). *Source: CPUC Annual Affordability Report 2024.*

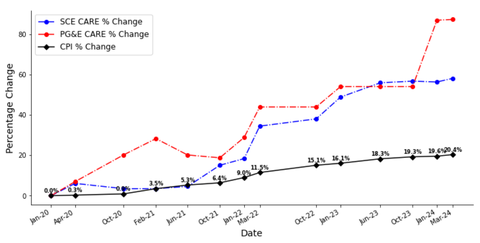

Fig. 9: Percent change in CA CARE rates vs. CPI (baseline, 2020)
Source: CA Rate Change Advisories

Potential Policy Solutions

Near-term: Least-cost alternatives and rate discipline. i) Mandate lower-cost solutions before approving capital projects (particularly related to distribution capital and O&M). Encourage least-cost wildfire risk mitigation technologies (e.g. *Gridscope*, EPSS) that cost a fraction of undergrounding ($0.6–13M/mile for distribution; EEI, 2022). **ii)** Target electrification over mains pipeline replacement ($2–6M/mile), as modeled by CA SB-1221's 30 neighborhood decarbonization pilots. **iii)** Enforce inflation-constrained GRC proposals and tie executive pay to affordability metrics.

Medium-term: Cheaper financing and cost-causal load allocation. Securitize utility infrastructure debt into lower-interest bonds. CA SB-254 (2025) authorizes $15B for wildfire and grid costs. For new large loads, Minnesota's model (2026) provides a blueprint: for example, Google pays 100% of grid upgrades, 1,600 MW renewables, long-duration storage, and $130M in local tax revenue, with zero cost shifted to ratepayers.

Long-term: Performance accountability and transparency. Implement metrics-based "PBR-lite" tracking prospective benefits in utility applications against realized benefits to improve accountability. Research how expanding the CCA/non-profit model vs. IOU service impacts rates to inform future public ownership decisions.

Acronym	Full Term
CEC	California Energy Commission
DA	Direct Access
EEI	Edison Electric Institute
EIA	U.S. Energy Information Administration
EPSS	Enhanced Power System Settings
GRC	General Rate Case
O&M	Operations and Maintenance
PBR	Performance-Based Regulation
PUDL	Public Utility Data Liberation Project
T&D	Transmission and Distribution