Panel Three: Do We Need a Paradigm Shift in How California Funds Climate Change Initiatives?

Moderator: Edward Randolph, Deputy Executive Director CPUC

Panelists:

- Severin Borenstein, UC Berkeley Professor and Director of the Energy Institute at Haas; member of CAISO Board of Governors
- Mark LeBel, Associate, Regulatory Assistance Project
- Michael Wara, Director of Climate and Energy Policy Program, Woods Institute for the Environment, Stanford University
- Anthony Kinslow II, CEO, Gemini Energy Solutions; Stanford University Lecturer
- Mark Toney, Executive Director, The Utility Reform Network

California Public Utilities Commission

Designing Electricity Rates for an Equitable Energy Transition

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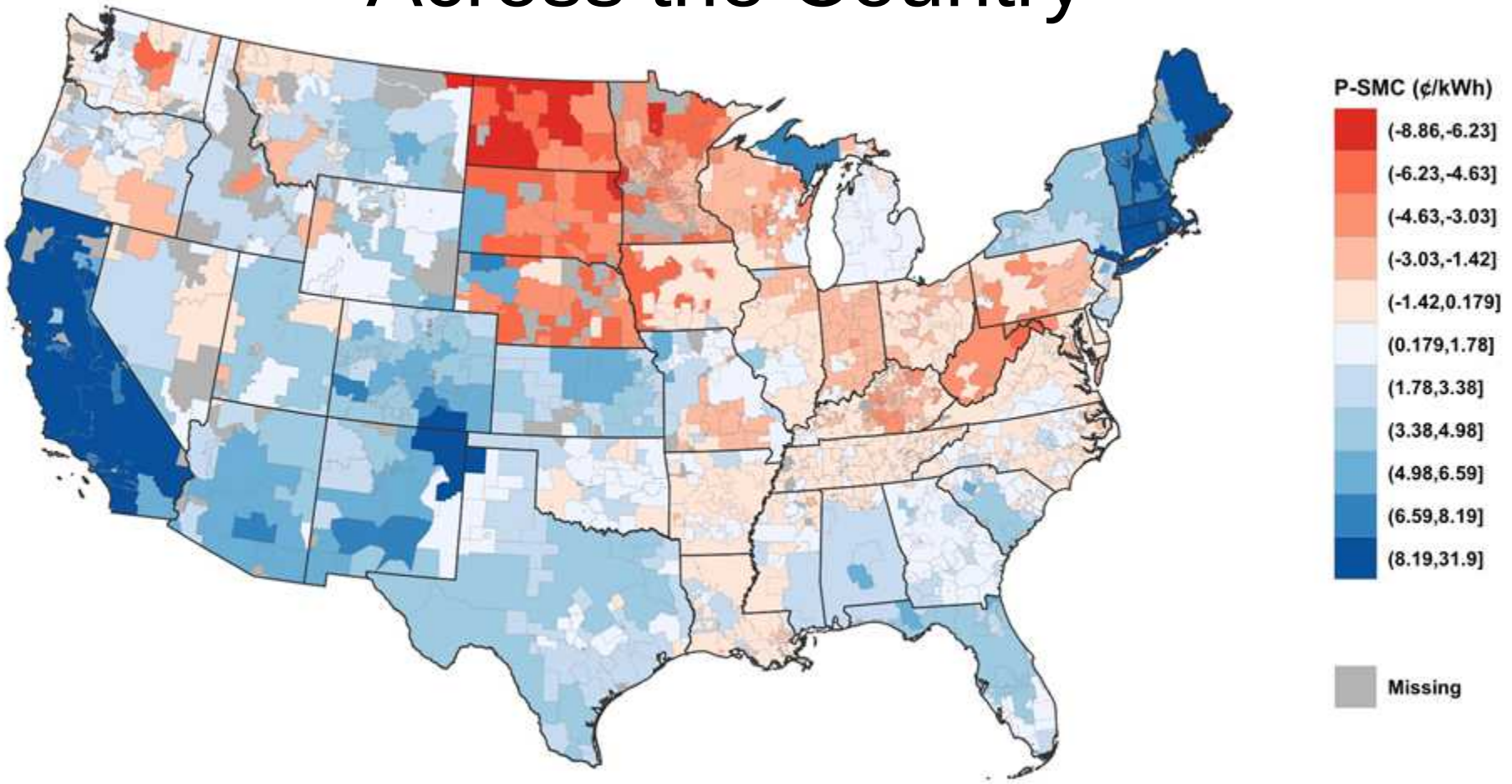
Study supported by Next 10 and available at Next10.org

Efficiency and equity effects of residential electricity rates

- Pricing that deviates from social marginal cost (SMC) creates incentives for overconsumption or under consumption
  - SMC must include all externalities
  - Price way above SMC discourages electrification
- But utilities have to cover all of their costs and setting P=SMC will under-recover in most cases
  - How to recover costs without undermining efficient consumption?
  - How to maintain affordability for low-income and middle income households?

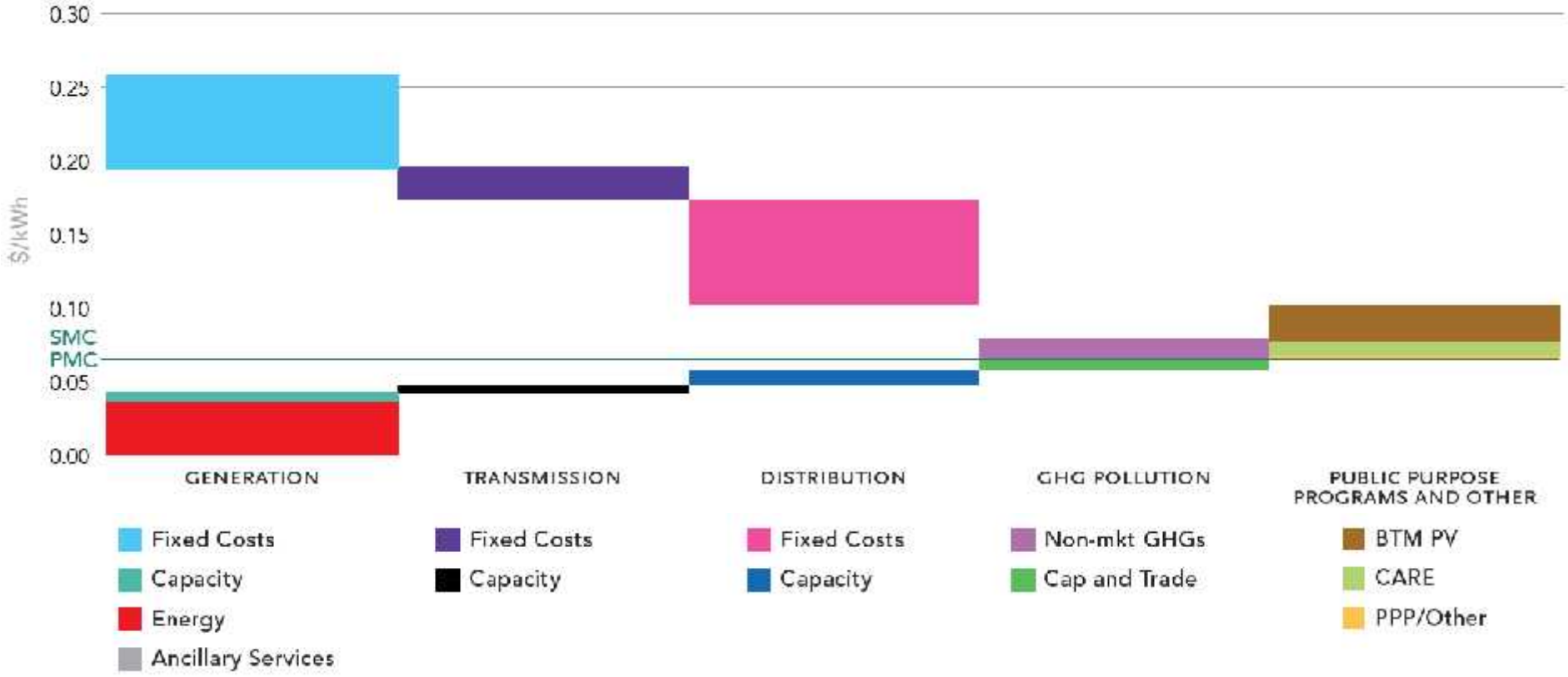
Price versus Social Marginal Cost Across the Country



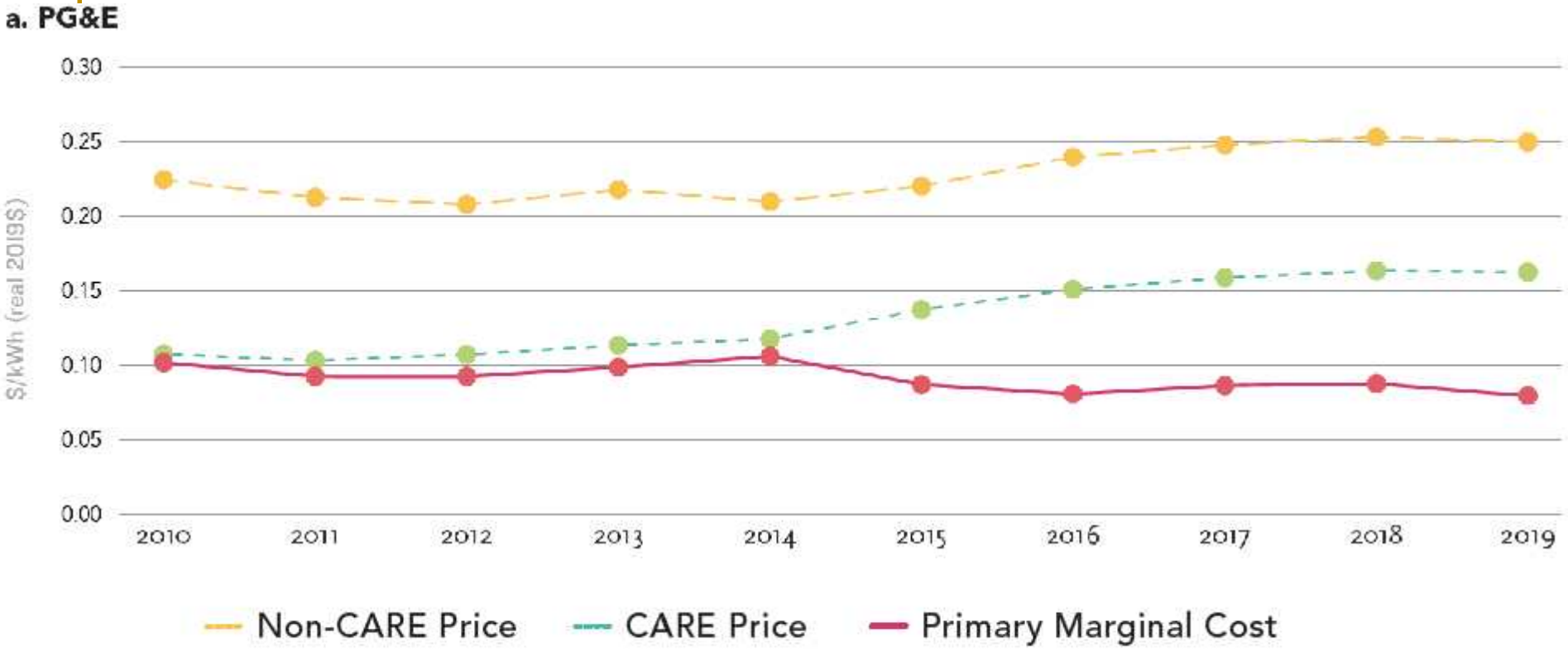
Borenstein and Bushnell, "Do Two Electricity Pricing Wrongs Make a Right? Cost Recovery, Externalities, and Efficiency", Energy Institute at Haas Working Paper #294, revised July 2019

Why are residential electricity rates so high?

a. PG&E (2019)



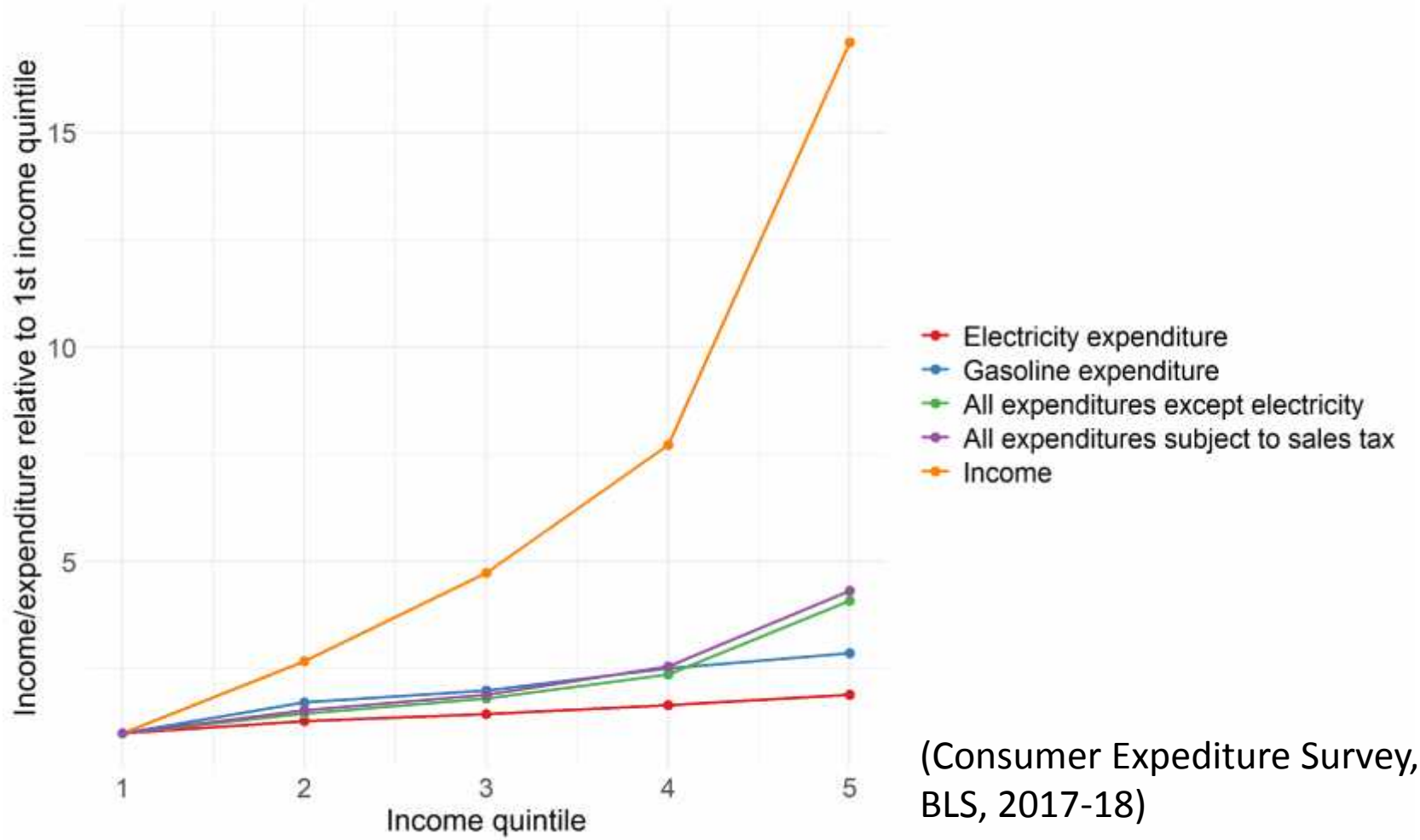
Volumetric Price is Far Above Social Marginal Cost



California IOUs cover the residential revenue gap through volumetric charges

- This is essentially a volumetric tax on electricity to cover infrastructure and public purpose programs
  - CARE customers pay a discounted volumetric charge, but even that is above SMC
- But at this point wealthier households consume only slightly more (net) electricity from the grid than poorer households
- Which makes a volumetric tax on electricity more regressive than sales tax or gasoline tax, and way more regressive than income tax

Expenditures by category across income quintiles



(Consumer Expediture Survey, BLS, 2017-18)

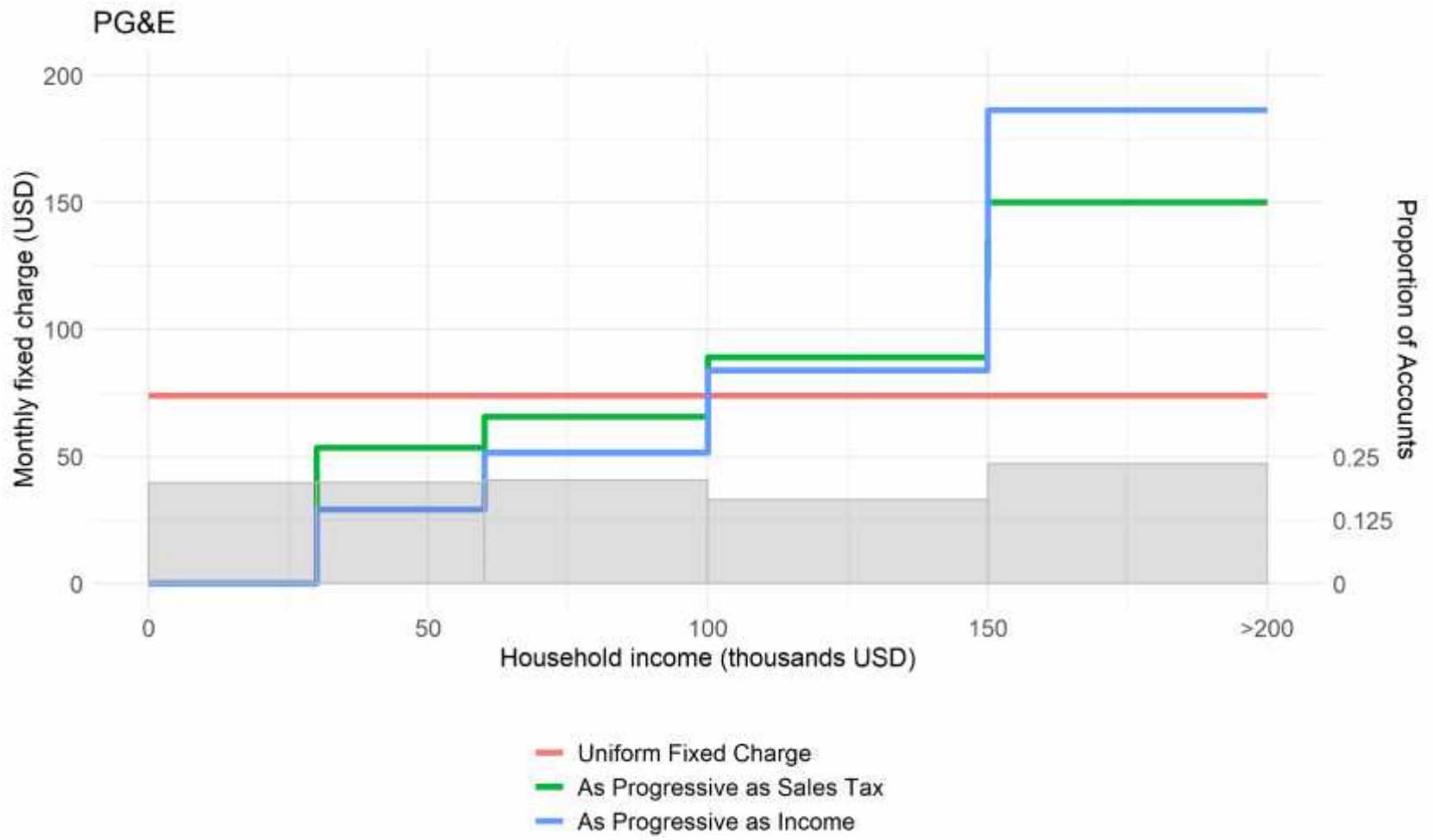
Is there a way to reduce volumetric price without raising regressivity?

- Uniform fixed monthly charge is probably still more regressive than volumetric pricing
  - Even if CARE customers were omitted
- One way to reduce the problem is load fewer costs into electricity bills
  - Subsidies for behind-the-meter generation
  - CARE
  - Energy efficiency programs
  - Wildfire mitigation and compensation
  - Infrastructure

Alternative Approach: Income-Based Fixed Charges

- Would require much more effective income verification than currently used for CARE
- Our report examines alternative ways this could be done
  - Declaration to utility, true up with Franchise Tax Board
    - Opt-in verification only
  - FTB transfers information on fixed charge categories to the utilities
  - Third-party or FTB does confidential merge of utility and FTB data
  - Default charge by location
- This would be paired with lowering the volumetric price to social marginal cost, around 8-10 cents per kWh

Some Example Fixed Charge Schedules



Conclusions

- Current residential rate schedules create perverse incentives
- Most of revenue collected with volumetric rates does not pay volumetric costs
- Differential is due to infrastructure, wildfire, BTM PV, CARE, public purpose programs
- Volumetric collection is a highly regressive tax
- One partial solution: pay for state policy priorities through the state budget
- Another possible solution: income-based fixed charges

Report and Webinar

- Report is available at https://www.next10.org/publications/electricity-rates

- Webinar presentation, March 4, 1pm https://register.gotowebinar.com/register/3136680587841562123

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Rate Design Theory and Practice

Electric Costs and Rates in California – En Banc Hearing

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Why and How Do We Regulate Utilities?

- Public policy goals
  - Efficient competition and control of monopoly pricing
  - Environmental and public health requirements
  - Societal equity (e.g., universal access and affordability)
- Principles for setting utility prices
  - Effective recovery of the revenue requirement
  - Revenue and bill stability
  - Customer understanding and acceptance
  - Equitable allocation of costs
  - Efficient forward-looking price signals

Algorithm for Socially Efficient Price Signals

1. Start with short-run marginal costs where you can
2. Layer in long-run marginal costs
3. Add any unpriced externalities
4. End by allocating and pricing “residual” costs that must be recovered through rates

NY Value of Distributed Energy Resources Export Credit Structure

- Hourly wholesale energy pricing
- Generation capacity credit
- Delivery credits
  - DRV – Utility system-wide value
  - LSRV – Locational adder
- Environmental value credit

We pay for other “grids” in volumetric prices

Advanced Residential Rate Design

Cost Recovery Only	
Customer Charge ($/mo.)	$10
Site Infrastructure ($/individual NCP kW)	$1
Bidirectional Distribution Network Charge (Cents/kWh on imports and exports)	5 cents

Symmetric Charges and Credits	
Off-peak (cents/kWh)	5 cents
Mid-peak (cents/kWh)	12 cents
On-peak (cents/kWh)	28 cents
Critical peak (cents/kWh)	75 cents

Problems with Ramsey Pricing

Ramsey pricing rule - place residual costs on the least elastic pricing element

- Elasticity estimates are not always obvious and can change
- Ramsey model underplays dynamic efficiency, information asymmetry, and competition across markets
- Distributional impacts can be challenging

About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at raponline.org

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