Building Decarbonization Electricity Rate Impacts

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Impact of Electrification on Retail Electricity Rates

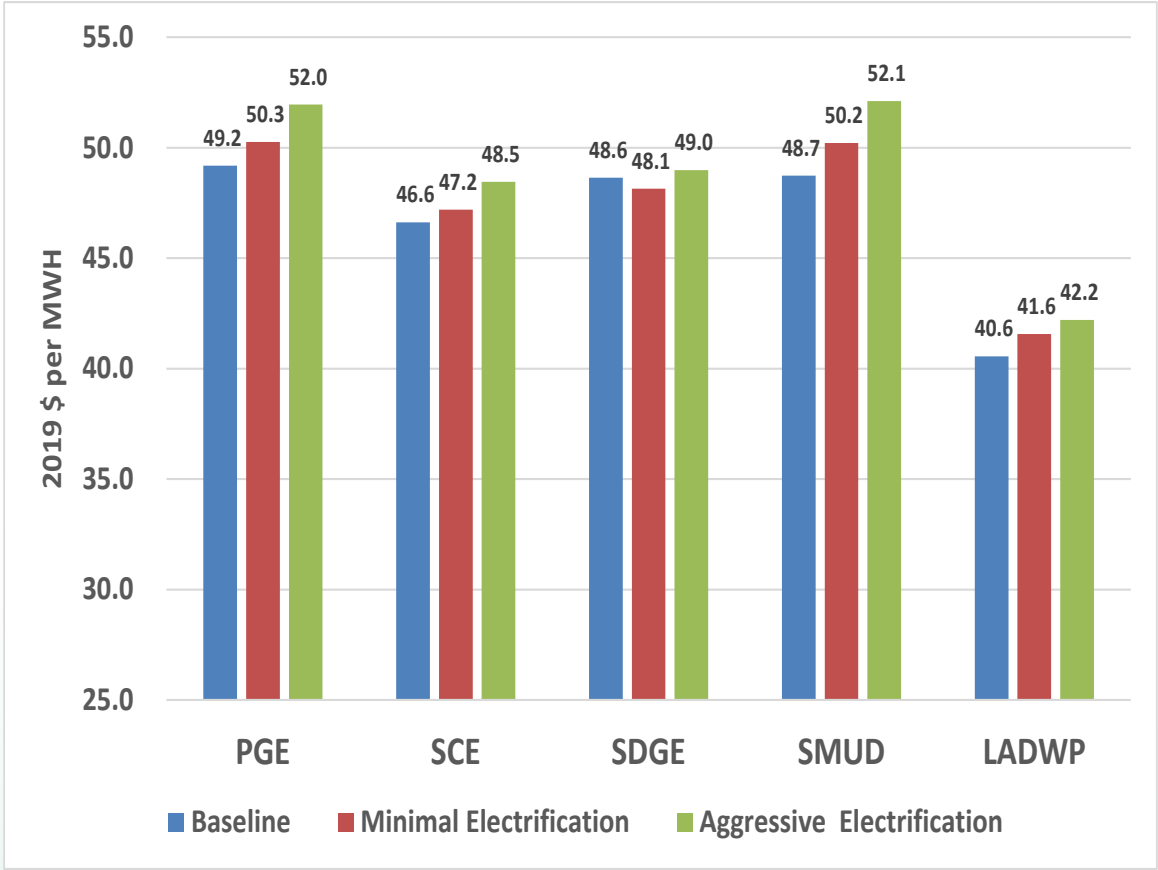
- Building decarbonization is likely to increase some elements of utility costs and revenue requirements, but the increasing volume of sales can offset the impact on rates.
- CEC staff developed residential and commercial sector electricity rate estimates consistent with the “minimal electrification” and “aggressive electrification” scenarios.
  - These results should be considered indicative of the potential magnitude of effects on rates.
  - Staff estimated the impact for three major categories of revenue requirements, procurement, transmission, and distribution, and compared the scenario rate to the 2019 IEPR mid-case electric rate scenarios.
  - Other revenue requirement categories are assumed unchanged, so the cost per kwh of sales decreases.

Procurement Costs

The increase energy costs is estimated using PLEXOS hourly prices:

- The 2030 cost per MWh of energy served, including ancillary services, increases 2 to 4.5 percent compared to the base case, reflecting the addition of renewable and battery storage resources with higher costs, but which decline over the forecast period.
- Capacity prices are assumed to increase 2.5% annually from current levels.
    - Incremental capacity costs are allocated to each sector proportionate to their contribution to increased system peak demand

Wholesale Cost of Energy Served by Planning Area, 2030 (2019$)



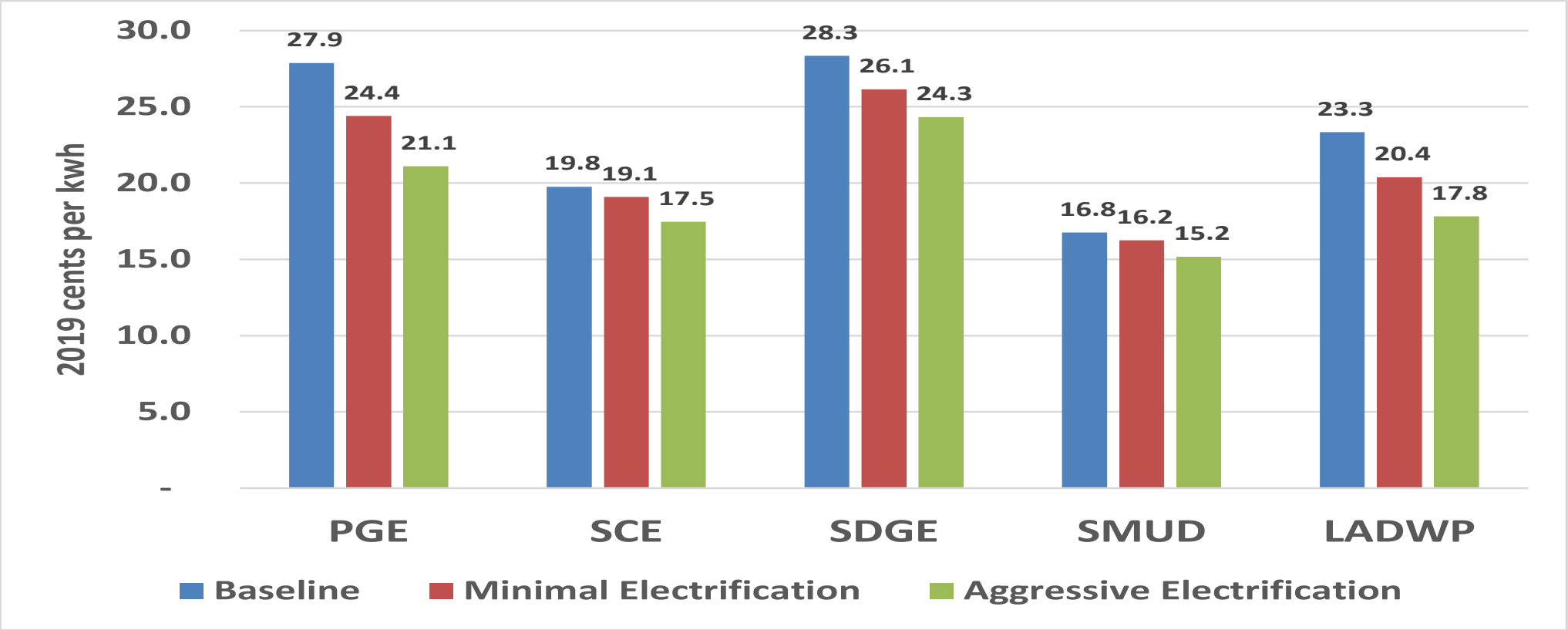
Transmission & Distribution Costs

- The significant increases in demand will likely necessitate additional investment in transmission and distribution (T&D) infrastructure compared to what is already planned. Other costs, such as customer costs, wildfire risk mitigation, or grid maintenance, do not increase with load growth.
- Staff used marginal distribution capacity and transmission capacity costs developed for utility rate design and cost of service studies to approximate incremental costs of infrastructure investment.
  - The capacity cost values are applied to the increase in peak demand associated with each sector to calculate the additional revenue requirement, which is added to the base case revenue requirement. Since the new revenue requirement is divided by higher sales, distribution rates decrease, even, in the case of SCE with the highest marginal costs of adding distribution capacity.

Marginal Distribution and Transmission Capacity Costs
$ per KW 2019$

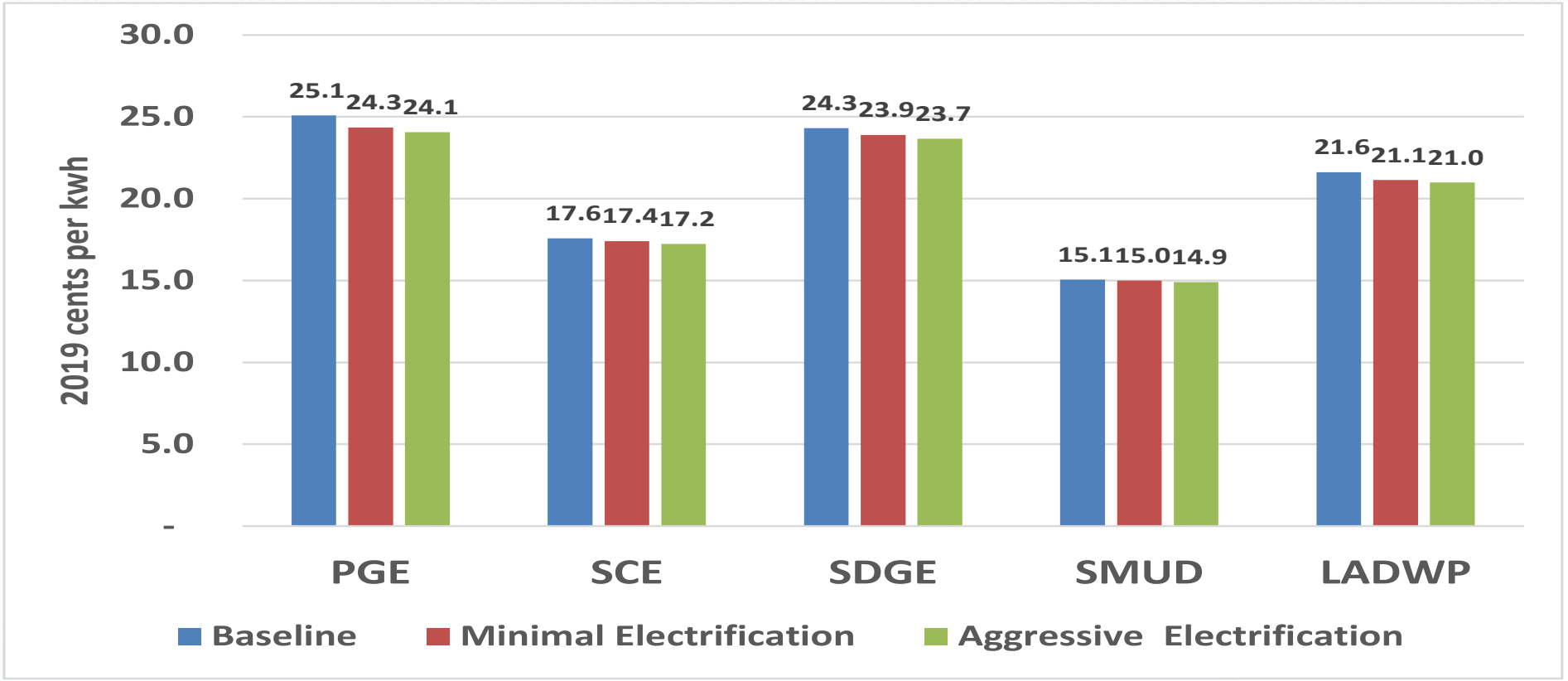
Planning Area	Distribution	Transmission
PGE	61	14
SCE	177	28
SDGE	71	14
SMUD	40	14
LADWP	146	28

Residential Electricity Rates in 2030



Rate decreases are largest for utilities which currently have relatively high procurement or grid costs.

Commercial Electricity Rates in 2030



Because the increase in load in the commercial sector is much smaller, rate impacts are minimal.

Caveats

- Some costs, such as additional resources that may be needed to support reliability, are not accounted for.
- Distribution and transmission planning studies will be needed to better estimate grid impacts.
- These results did not include load flexibility, which would reduce capacity needs and costs.
- Investment may be needed in advance of load growth, increasing rates in the interim.
- These results show average rates for all customers
  - Fully electric customers will have higher-than-average electricity usage that may not be accounted for in standard tariffs. Electrification-friendly rate designs can encourage technology adoption and load shifting to low-cost and low-emission hours.