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California Energy Commission

Preliminary Electricity Rates and Update on Time of Use Load Impact Scenarios

2017 Integrated Energy Policy Report
California Energy Commission

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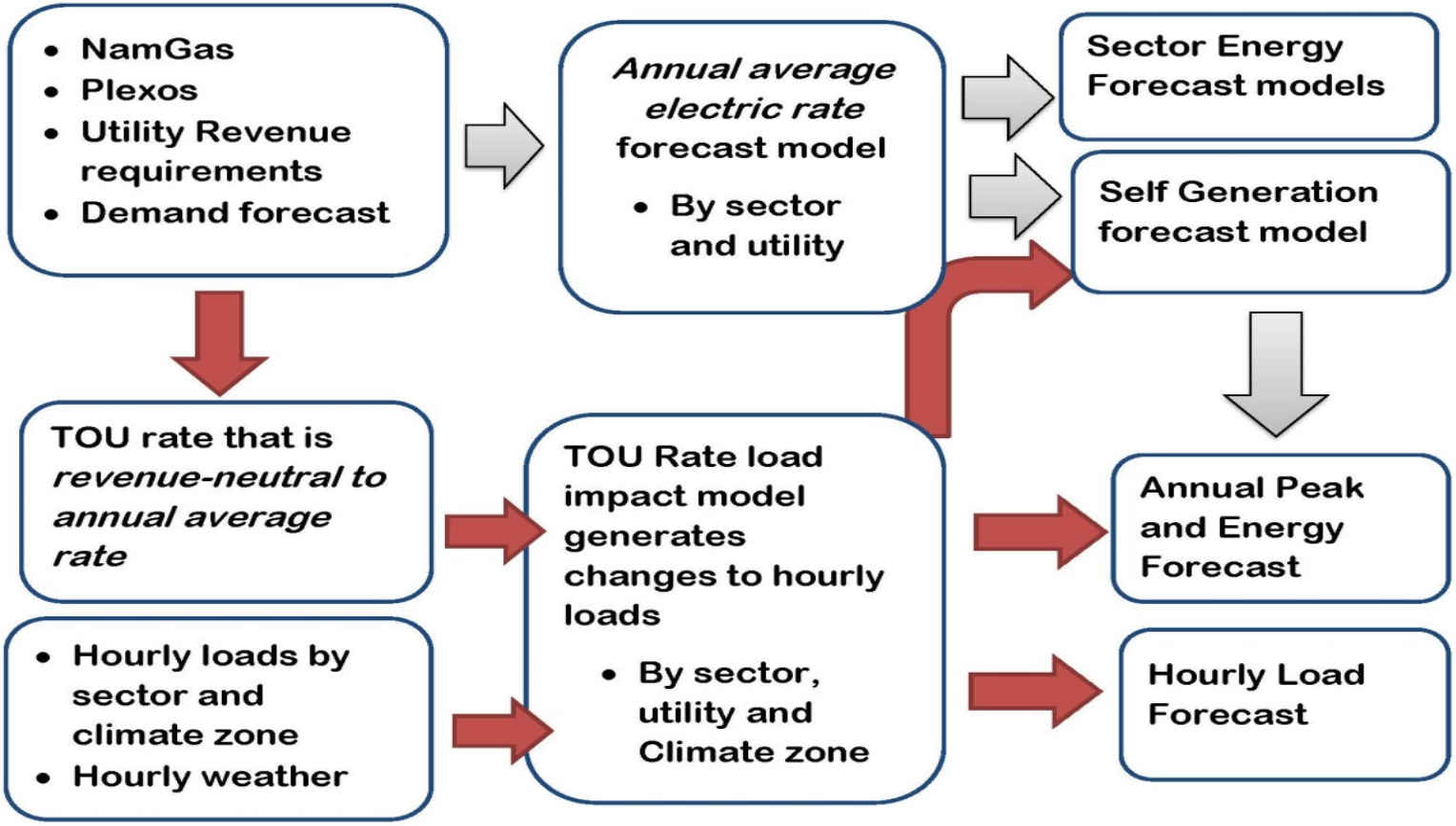
Electric Rate Projections: Annual and Time-of-Use (TOU)



Annual Average Rate Scenarios

Mid Energy Demand Case:

- Mid demand, natural gas, and carbon prices
- Capital expenditure consistent with existing infrastructure plans, and customer and peak forecast

High Energy Demand Case (Low Rates)

- Low natural gas and carbon prices
- More sales to recover transmission and distribution and other relatively fixed costs
- Less investment in infrastructure

Low Energy Demand Case (High Rates)

- High natural gas and carbon prices
- Lower demand means fixed costs per kwh of sales are higher
- More investment to support distributed resources

Inputs for Preliminary Rate Forecast

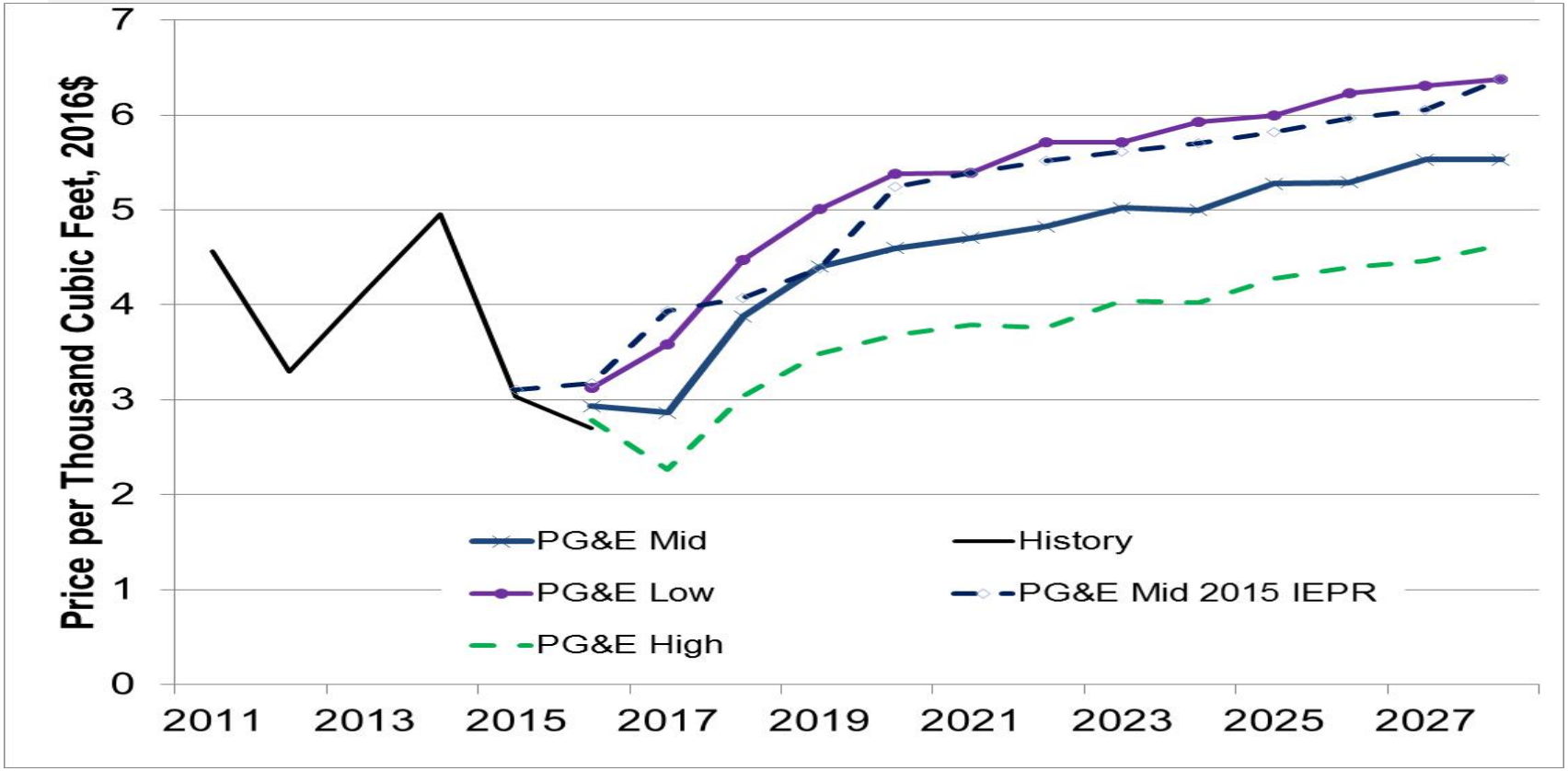
- Preliminary natural gas and carbon credit prices
- Revised renewable PPA Prices
- Partial updates to utility portfolios and other revenue requirements
- CED 2016 Update demand forecast assumptions

Revised rates will incorporate

- Analysis of June 2017 revenue requirement submittals
- Revised hub prices
- Preliminary demand forecast
- AAEE

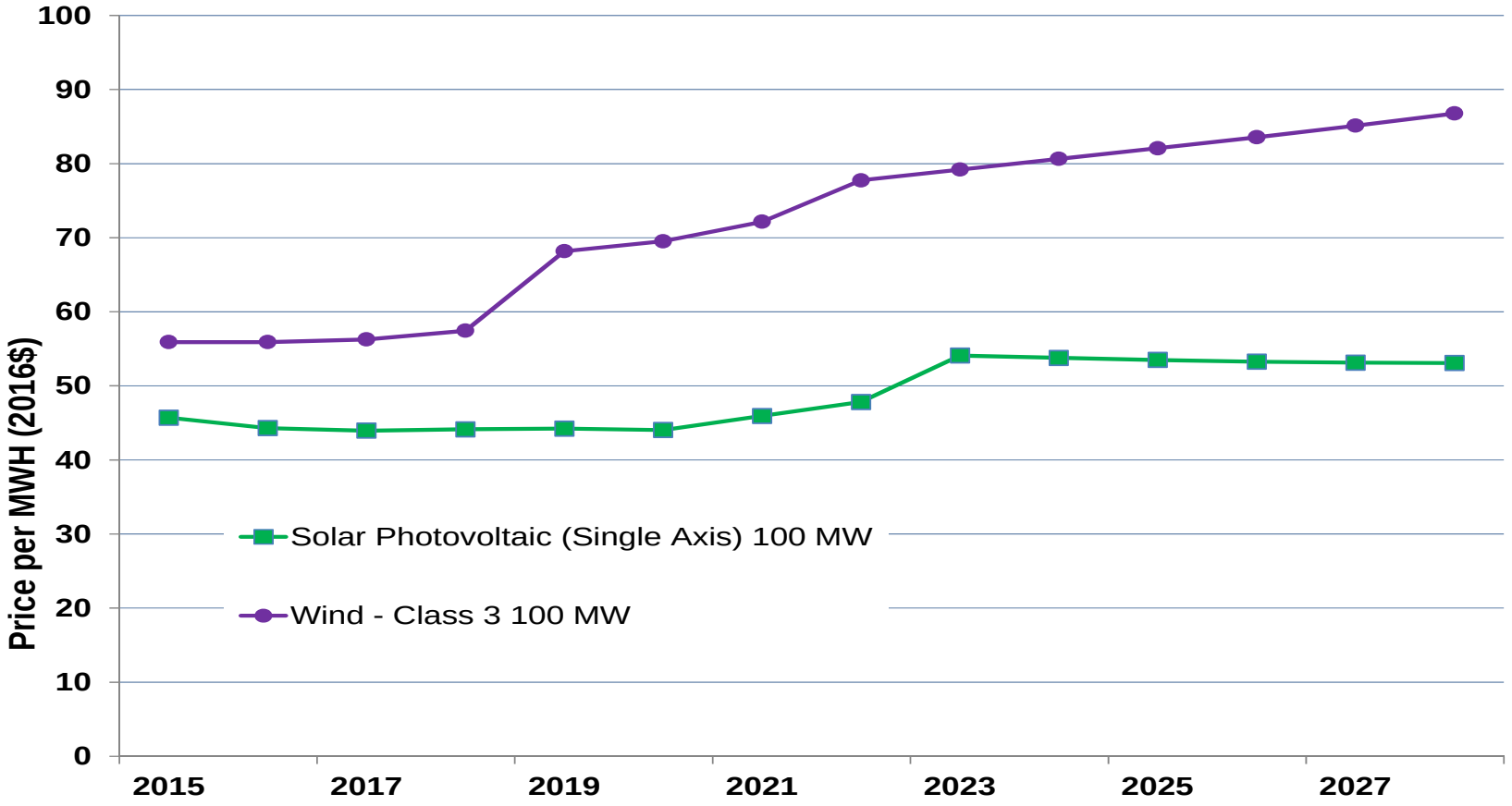
Preliminary Natural Gas Prices

Hub prices will be revised for final demand forecasts



- Source: Supply Analysis Office NamGas Model, April 4,2017

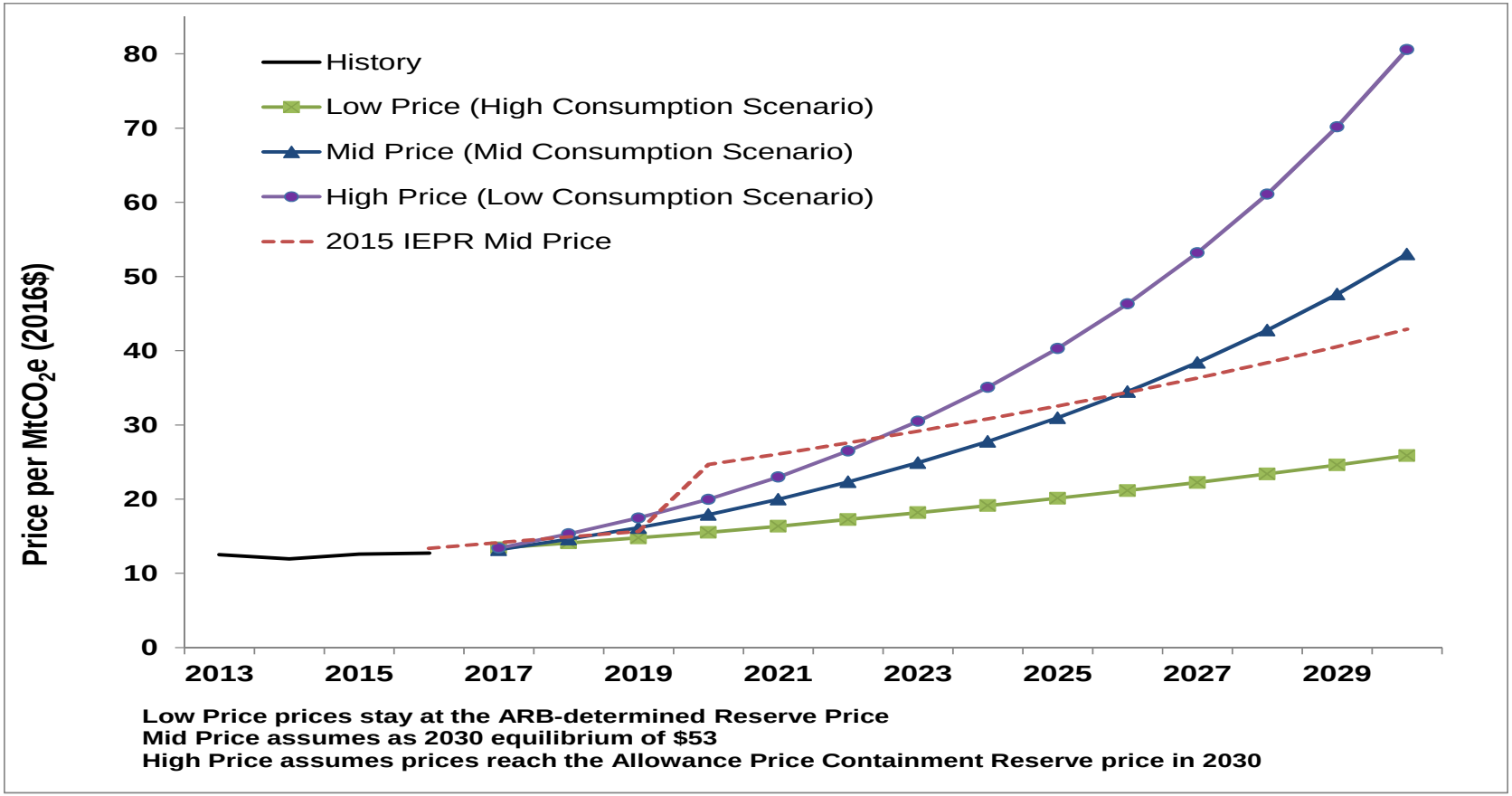
PPA Price for New Renewable Purchases



Price represents the contract price in the initial year. Price for new renewable procurement for rate forecast is the average, weighted 60% solar, 40% wind.

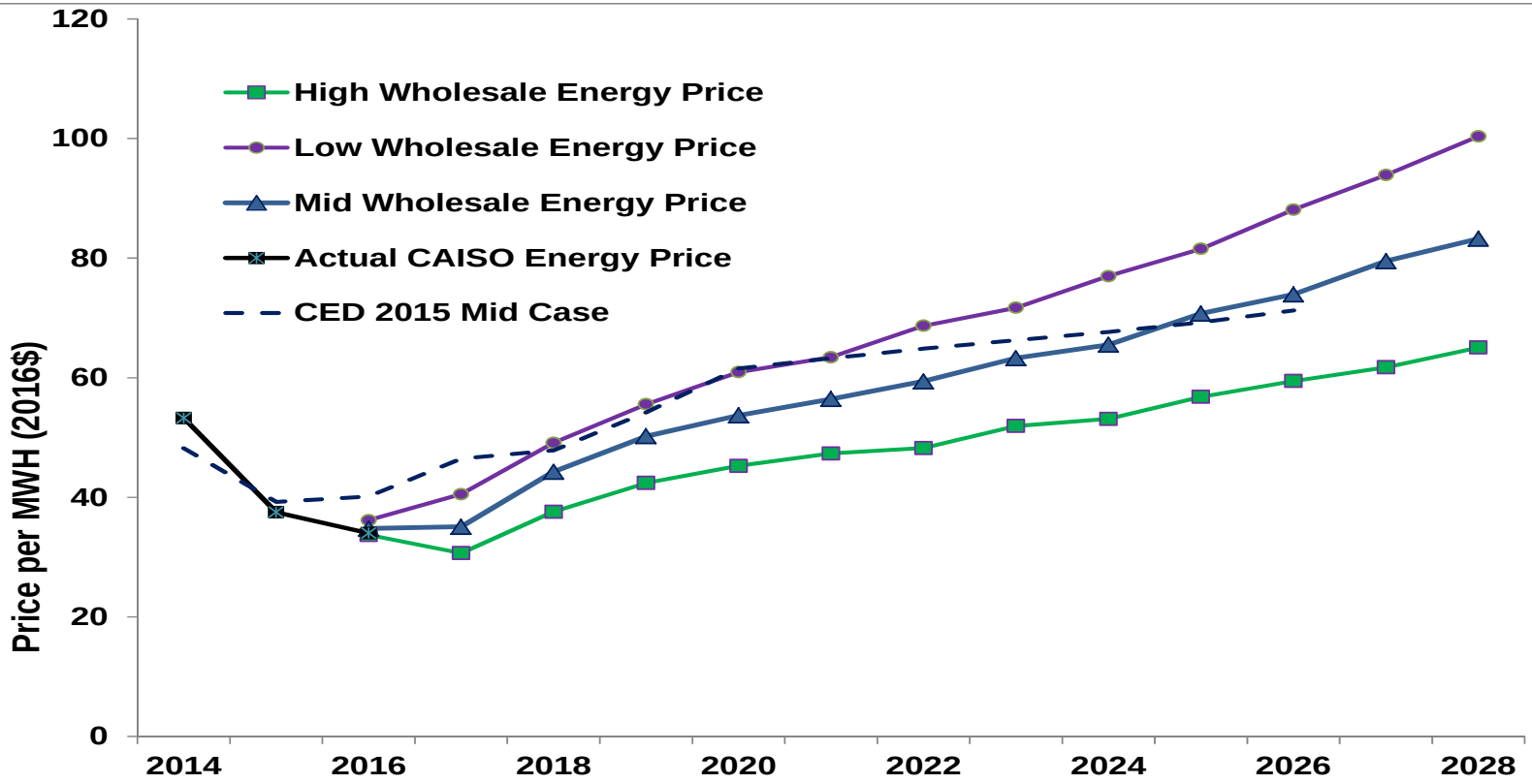
- Source: Supply Analysis Office Cost of Generation Model, April 4,2017

Preliminary Carbon Allowance Price Projections



AB 398 most likely affects the trajectory of the high price scenario.

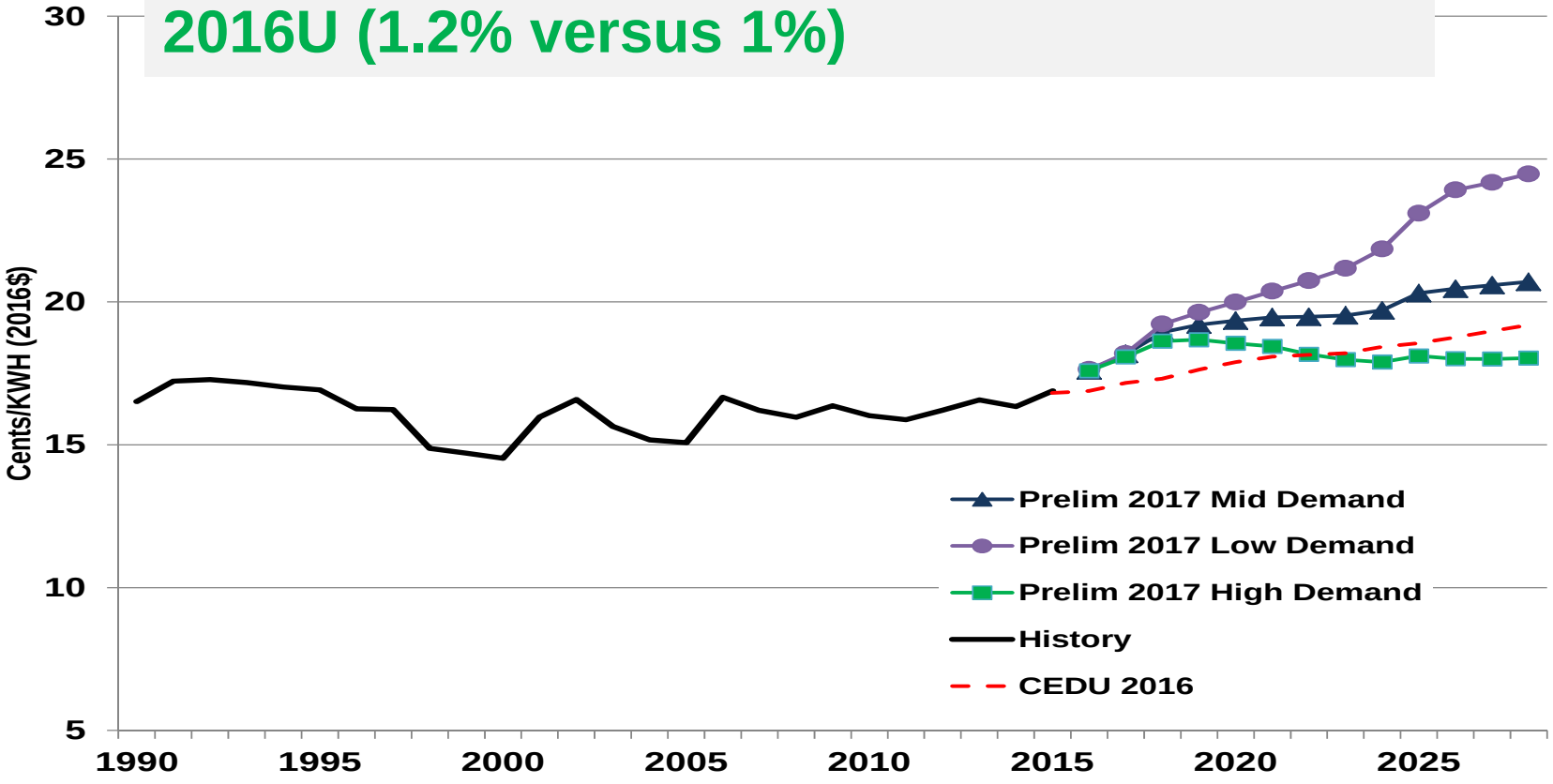
Wholesale Energy Price Projections



Wholesale energy price calculated using an average heat rate of 7300 Btu/KWH based on 2016/17 CAISO implied heat rates.

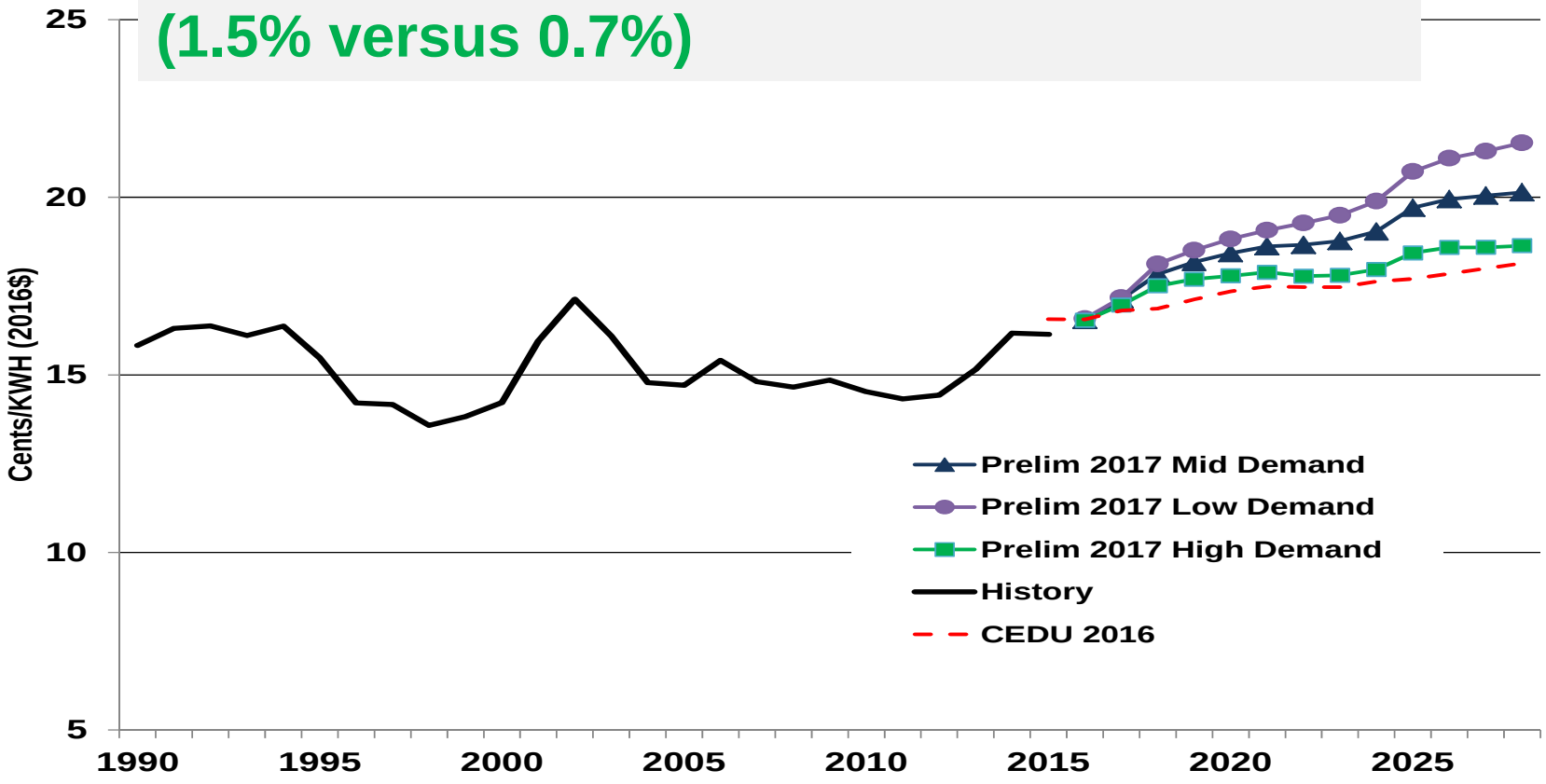
Statewide Average Residential Rates

Mid case growth is slightly higher than CED 2016U (1.2% versus 1%)

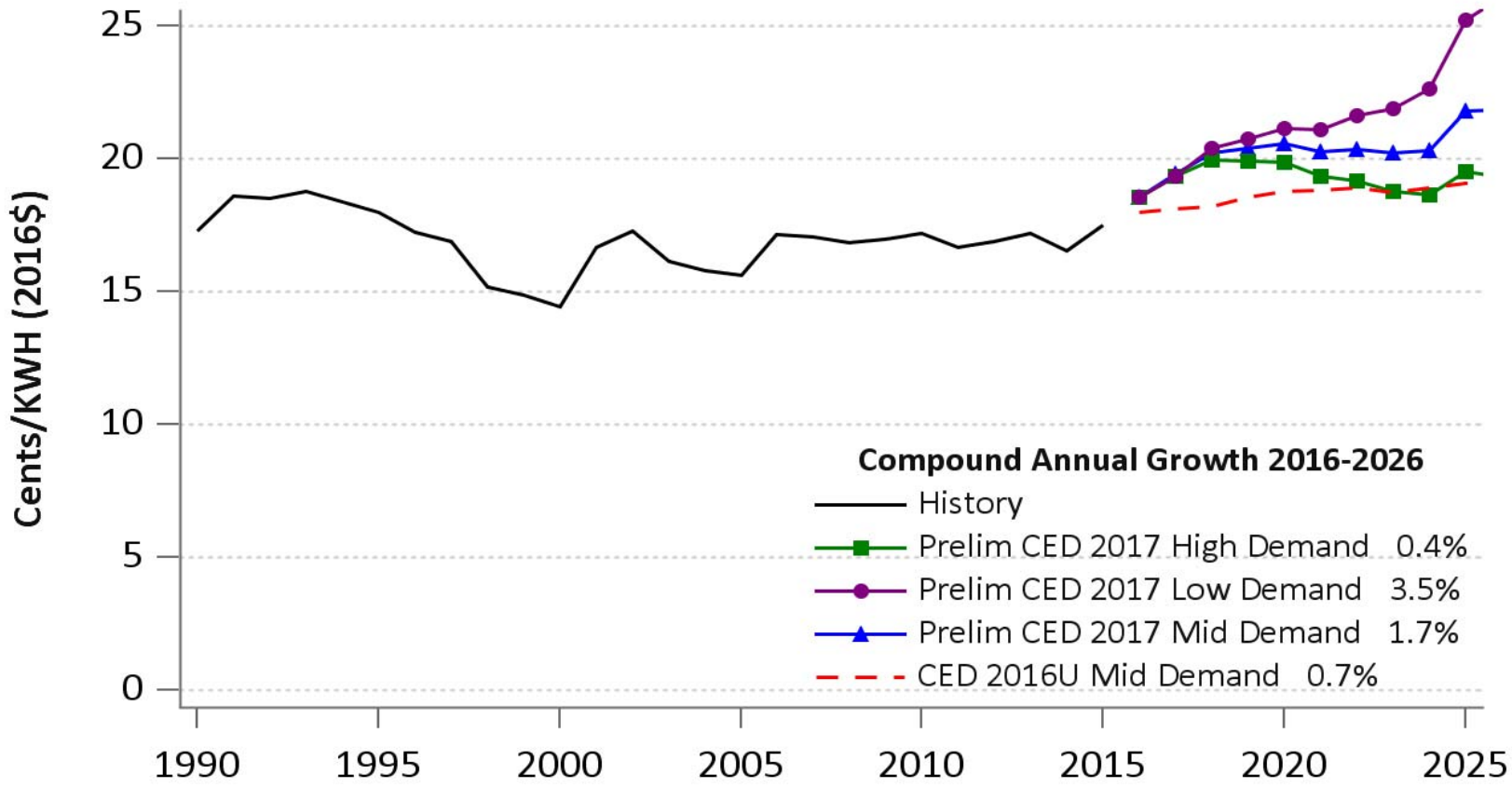


Statewide Average Commercial Rates

Mid case growth is higher than CED 2016U (1.5% versus 0.7%)

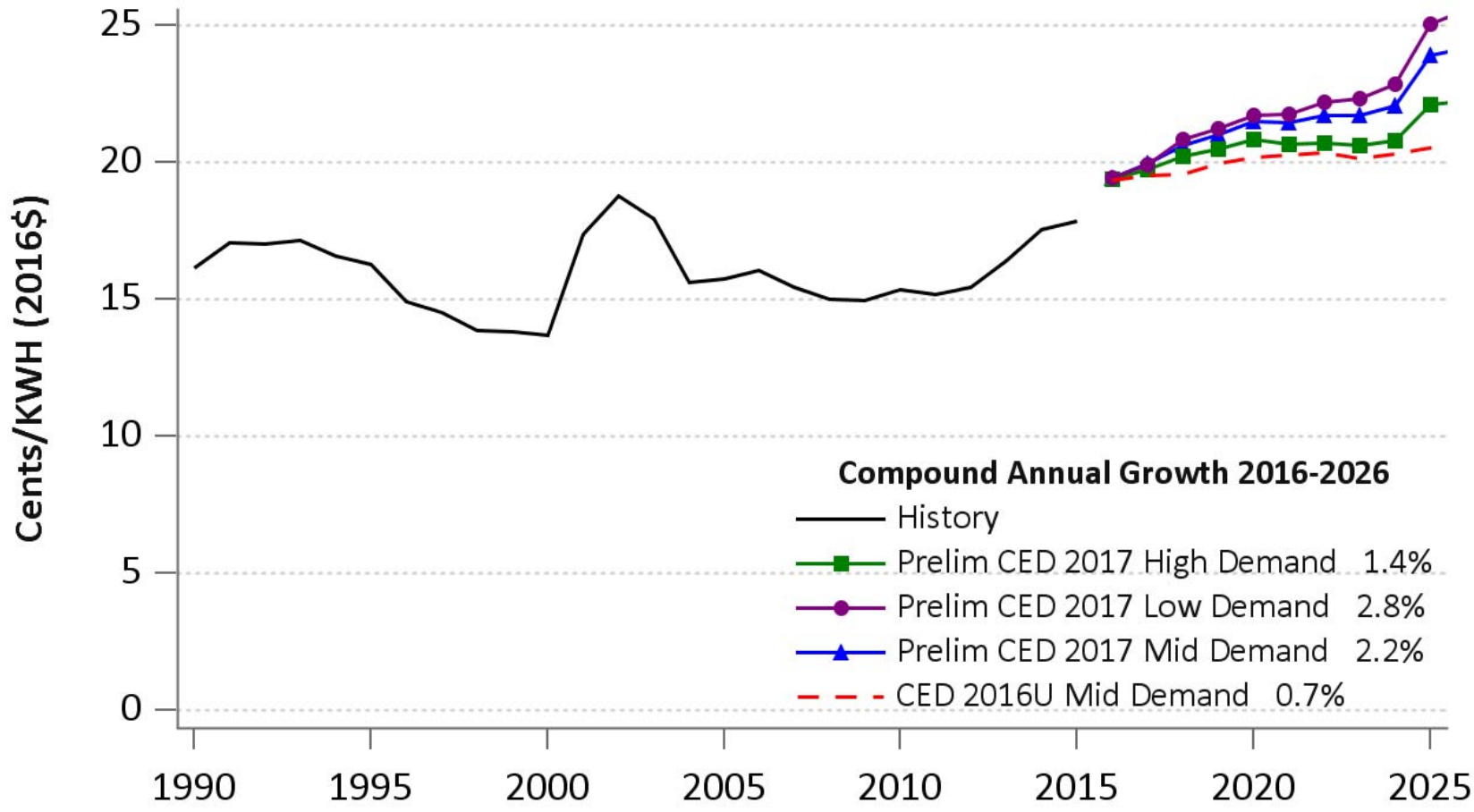


PG&E Residential Rates

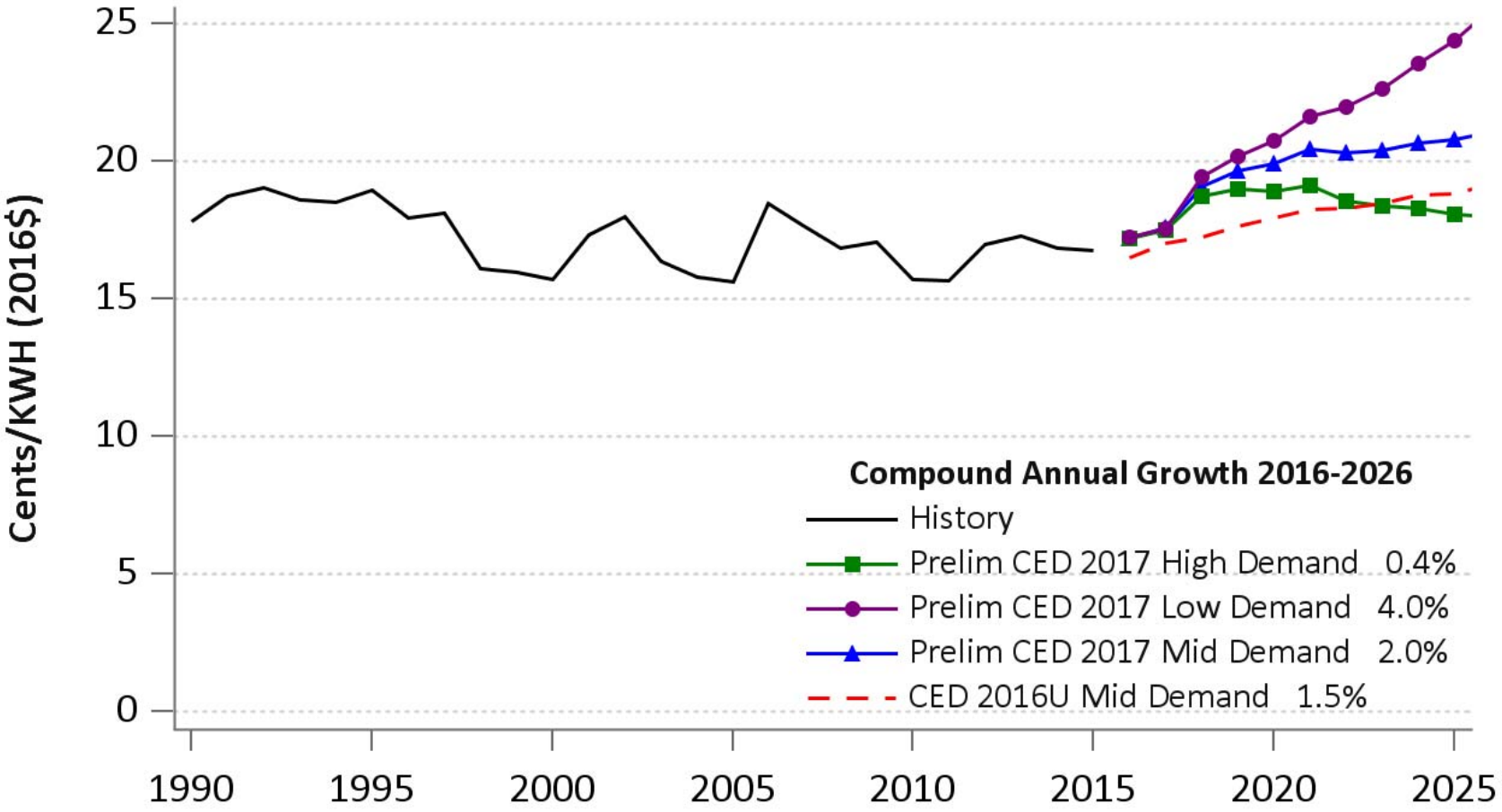


Revised rates will incorporate additional preferred resources

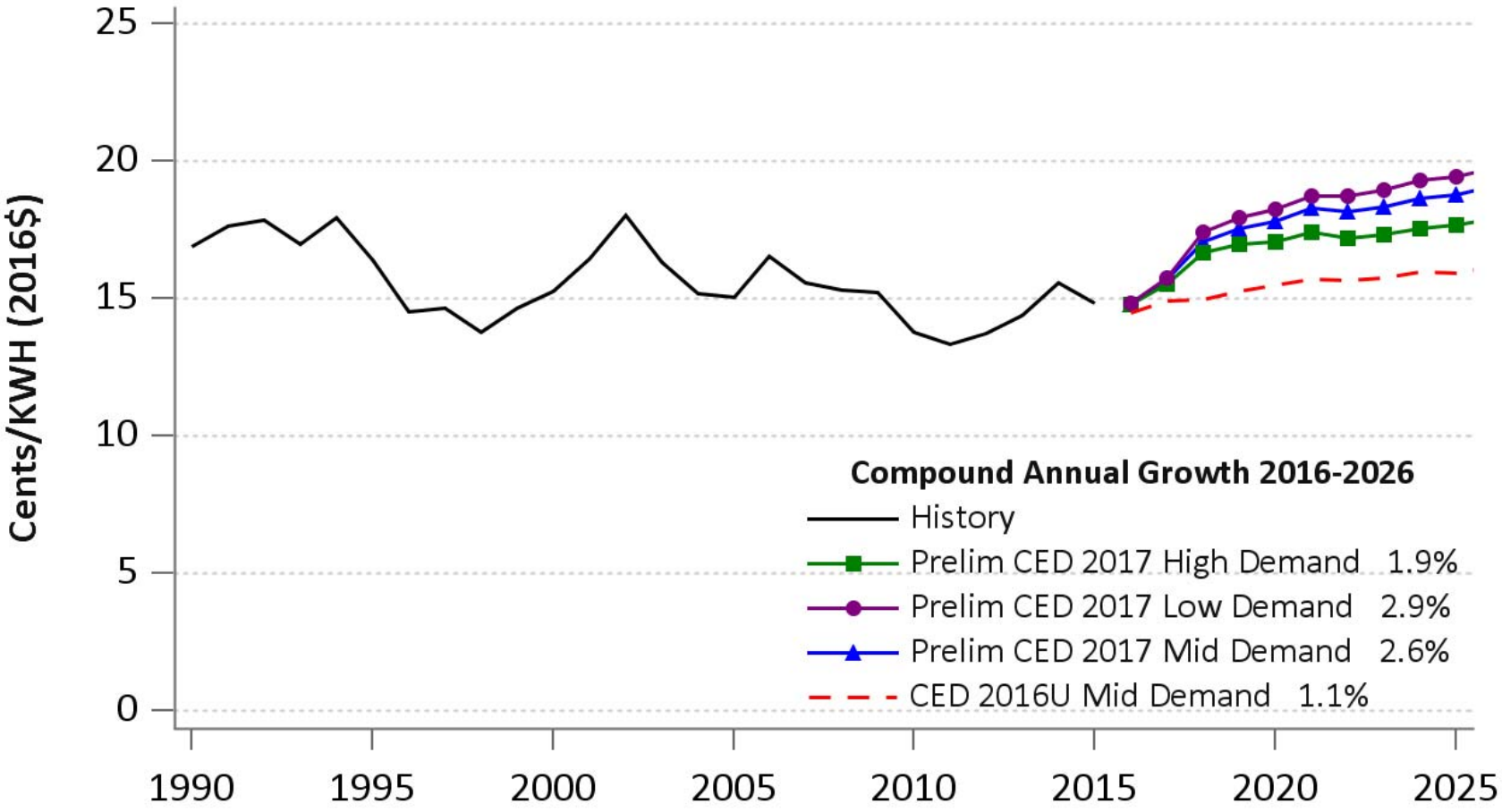
PG&E Commercial Rates



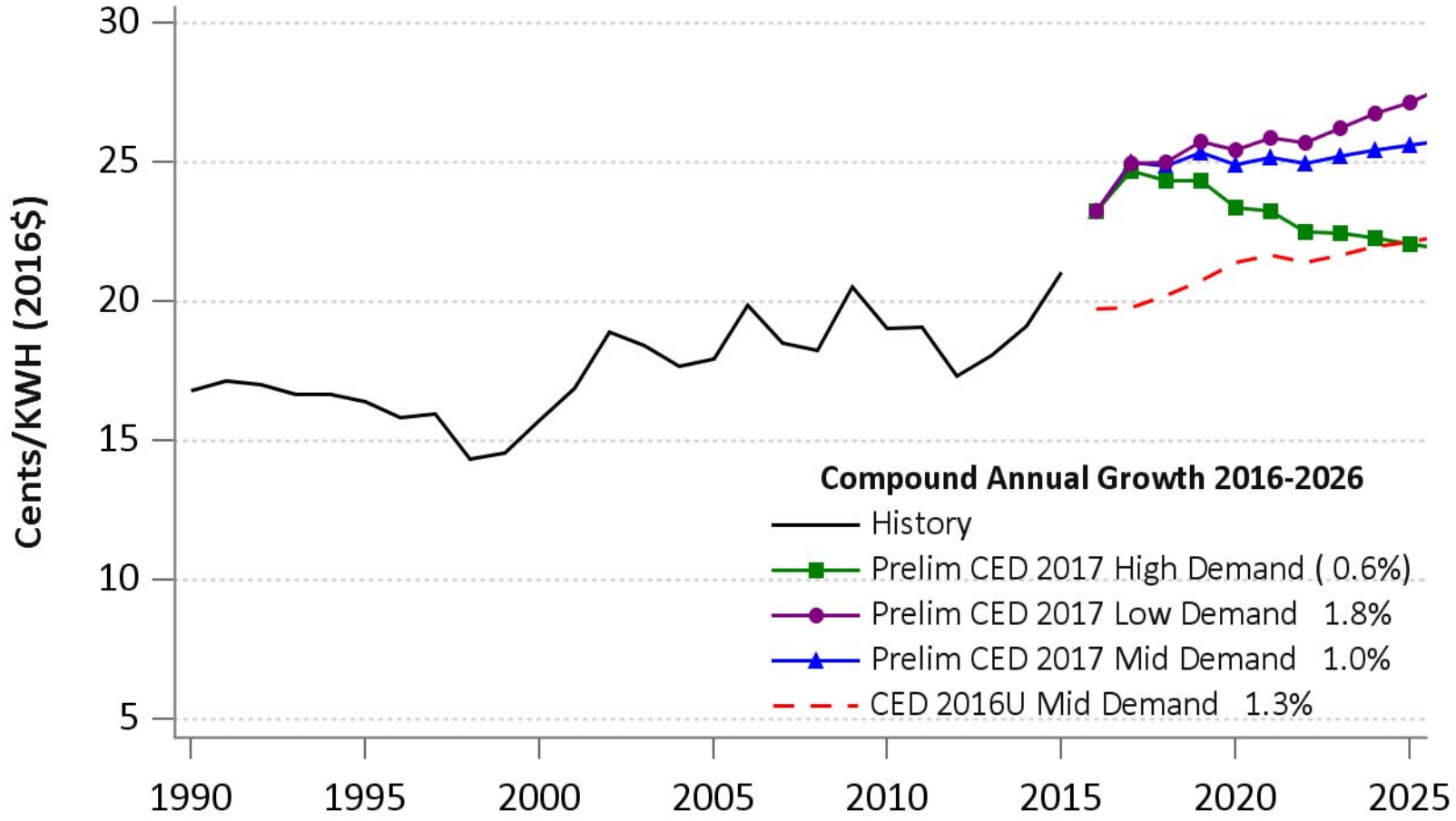
SCE Residential Rates



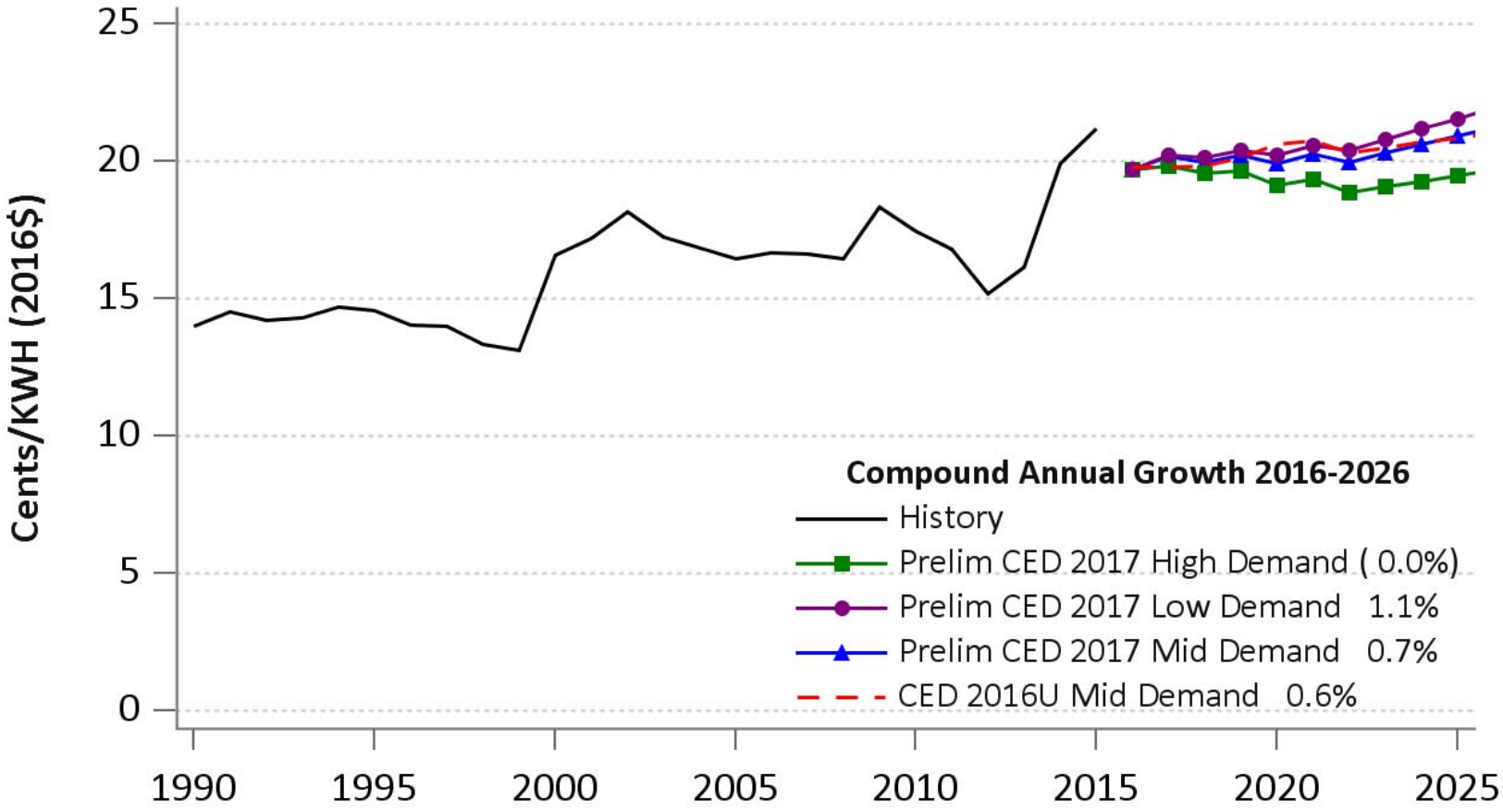
SCE Commercial Rates



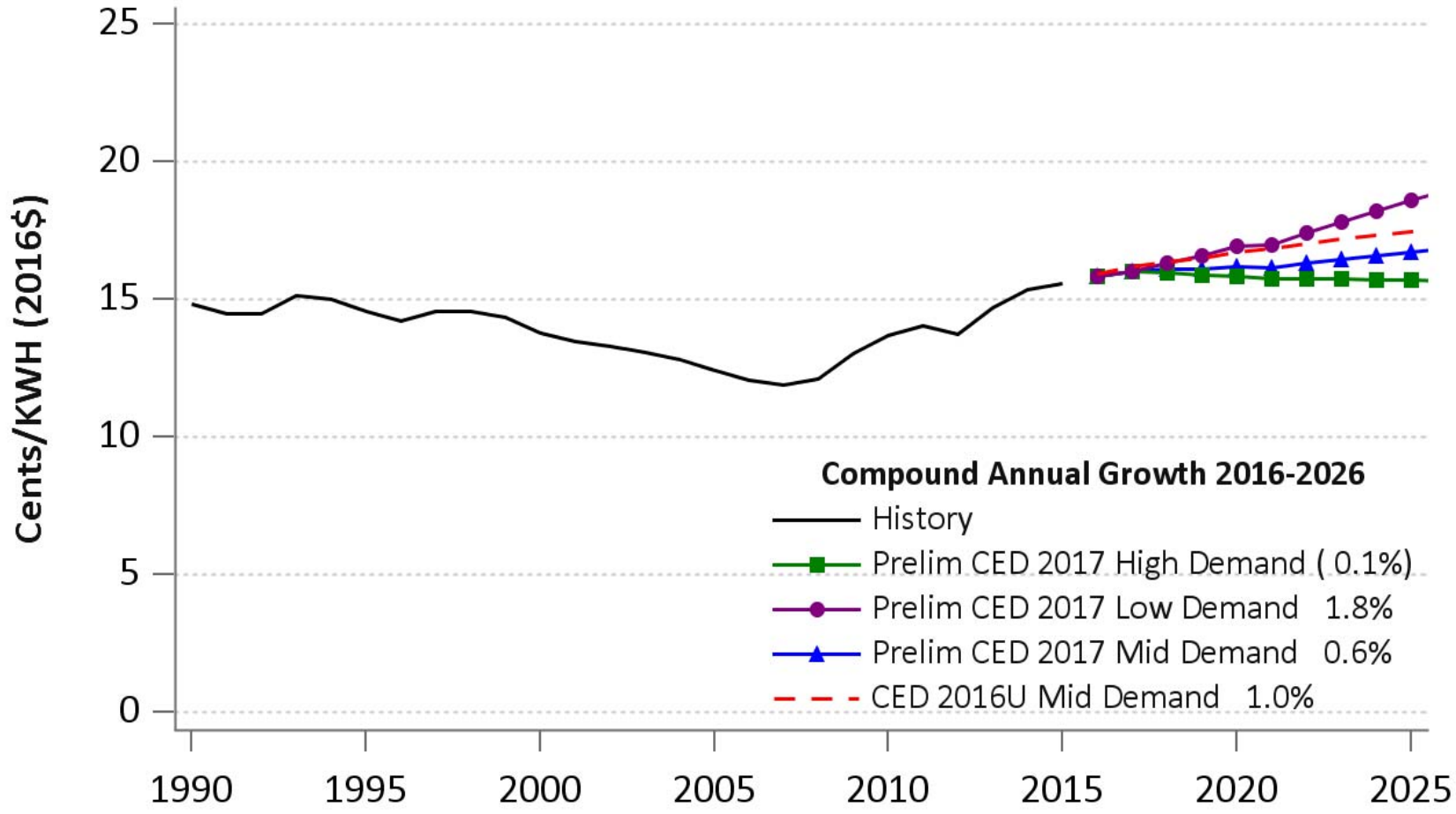
SDG&E Residential Rates



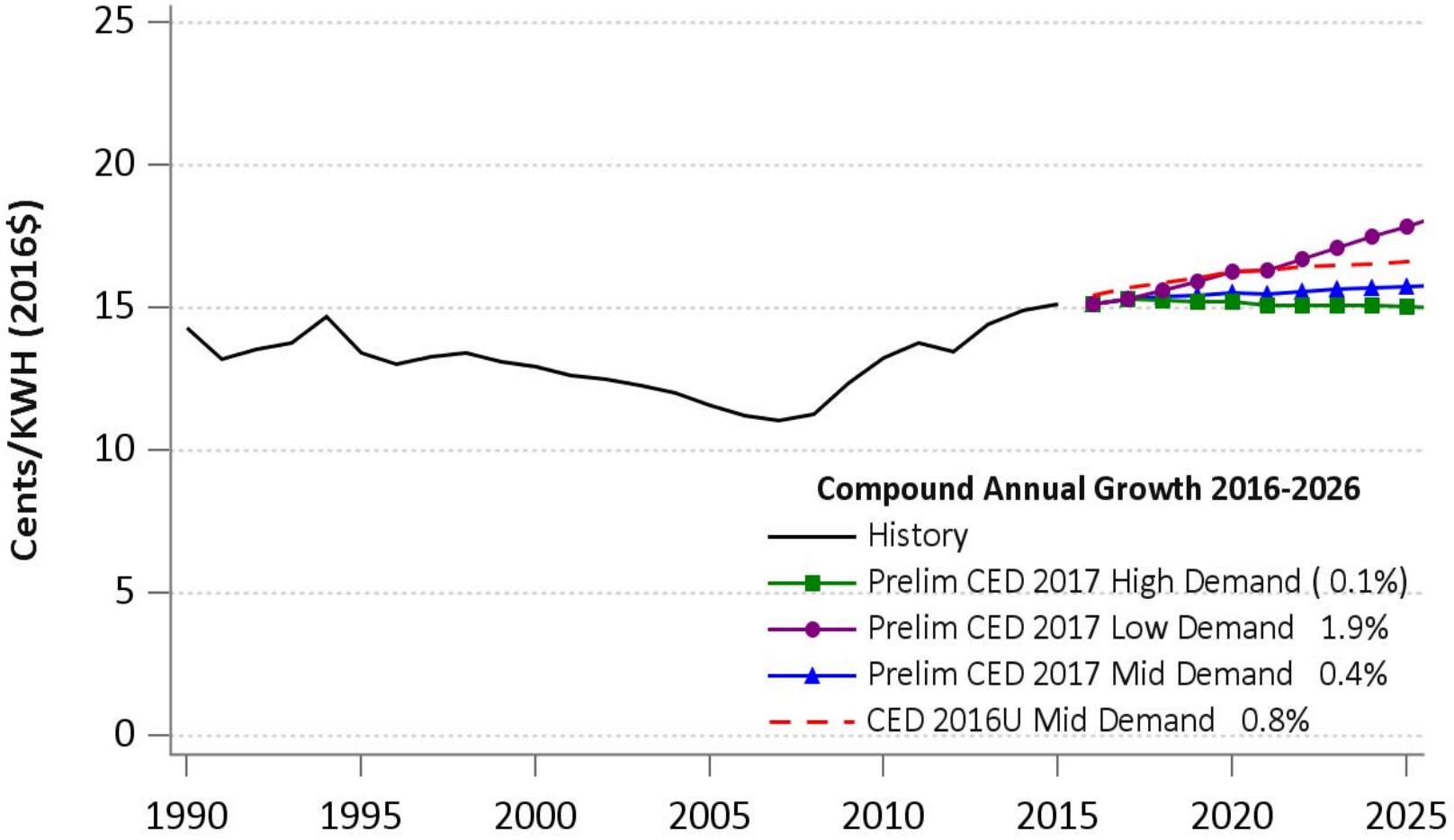
SDG&E Commercial Rates



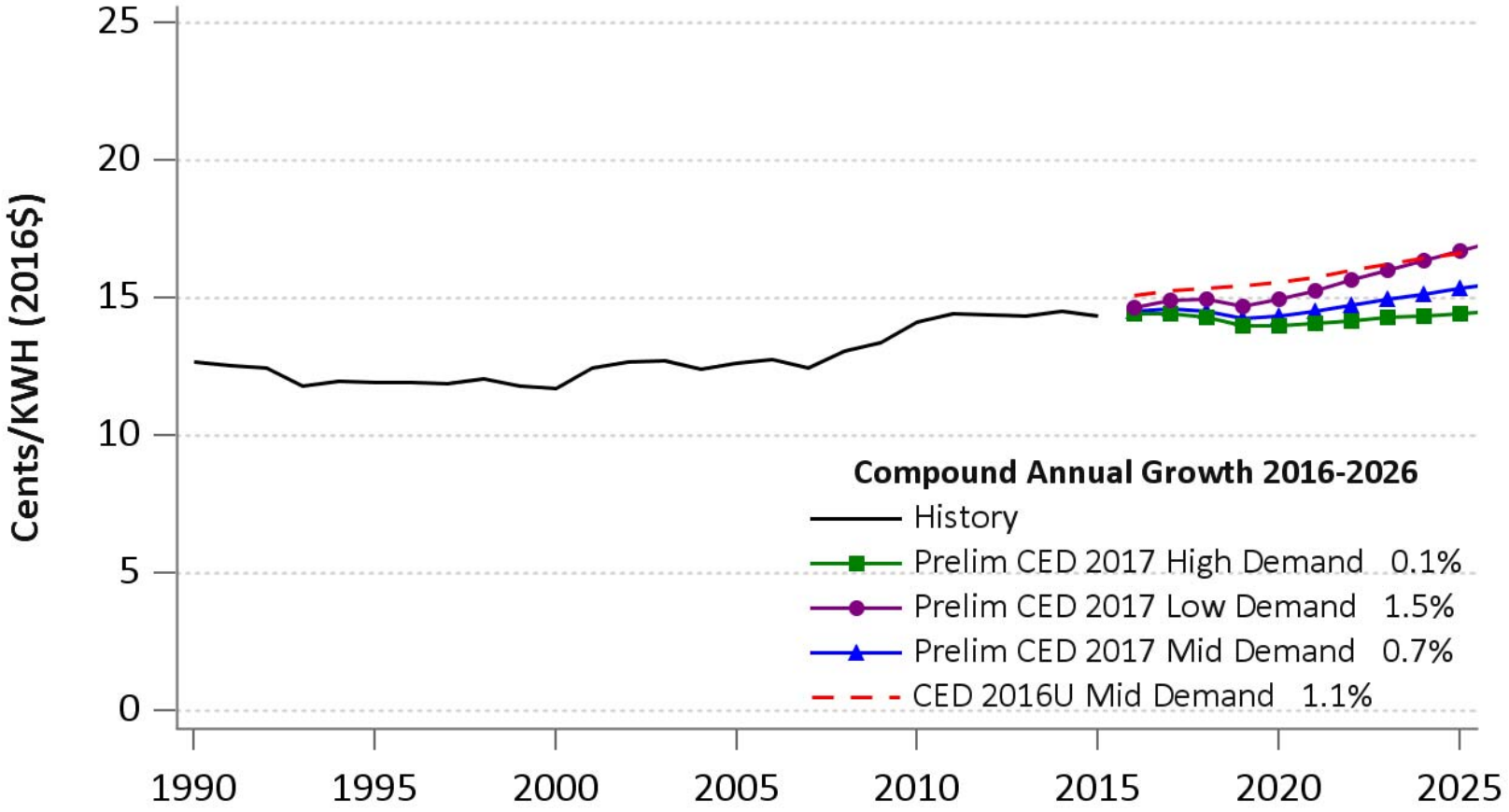
LADWP Residential Rates



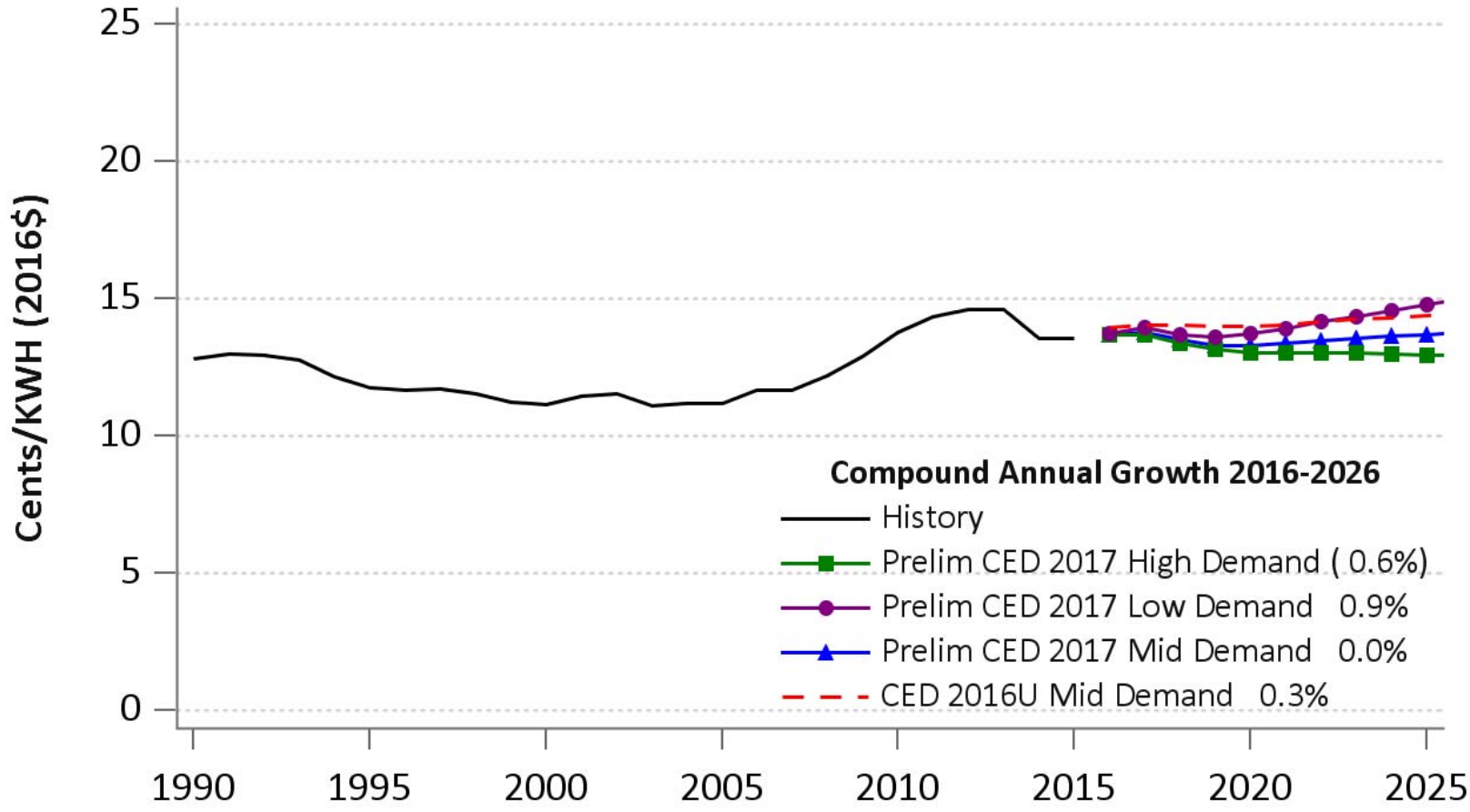
LADWP Commercial Rates



NCNC Residential Rates



NCNC Commercial Rates



Update on Residential TOU Activity

IOUs

- Opt-in pilot of various rate designs began summer 2016 and continues through 2017
- Default pilot begins 2018
- Default Pilot Rates have been authorized; most have 4-9PM peak period
- Residential Default rollout begins in 2019

SMUD Board has voted to implement standard residential TOD rate in 2019 with 5-8 PM Peak period

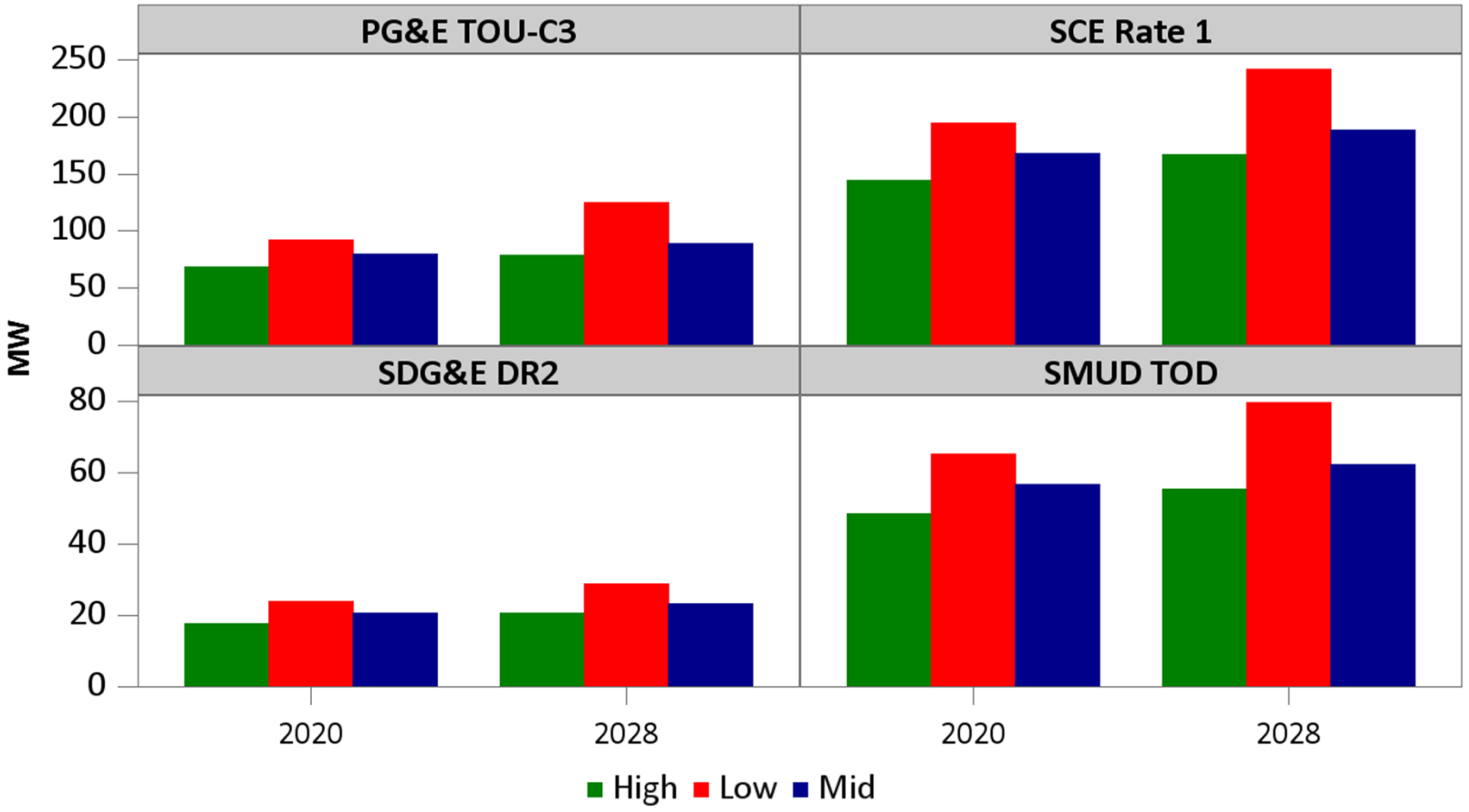
Key Assumptions for Estimating Default TOU Load Impacts

- Start with Statewide Pricing Pilot price elasticities
  - Use for potential PV adopters
- Adjustments based on relevant results from ongoing Opt-in Pilot
- Reduce estimated load impacts based on SMUD SPO Pilot to adjust for complacent and unaware participants
- IOUs estimate number of default-eligible customers at about 65%
  - Requirement for 12-months of interval meter data likely to exclude proportionately more multifamily households

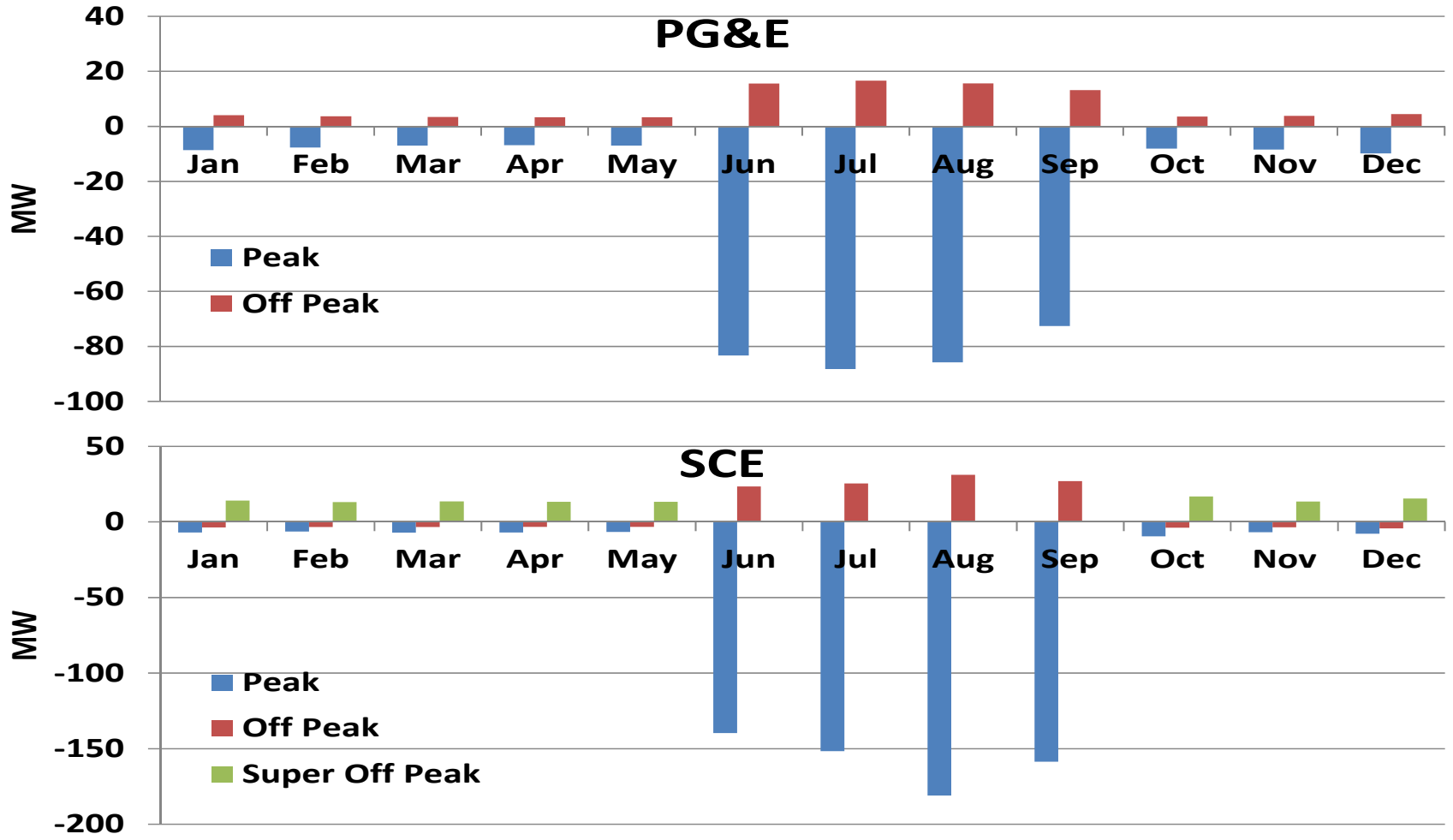
Preliminary Scenario Assumptions

- Mid Case
  - Fixed peak-to-off peak rate differential
  - Engagement adjustment 35%
- High Demand/Low Rates/Low Engagement
  - Fixed peak-to-off peak differential
  - Engagement adjustment 45%
- Low Demand/High Rates/High Engagement
  - peak-to-off peak differential increase 1%
  - Engagement adjustment = 25%
- All IOU cases currently assume 65% eligible and 5% opt-out rate; SMUD 4% opt-out rate
- Revised results will be adjusted for forthcoming AAEE

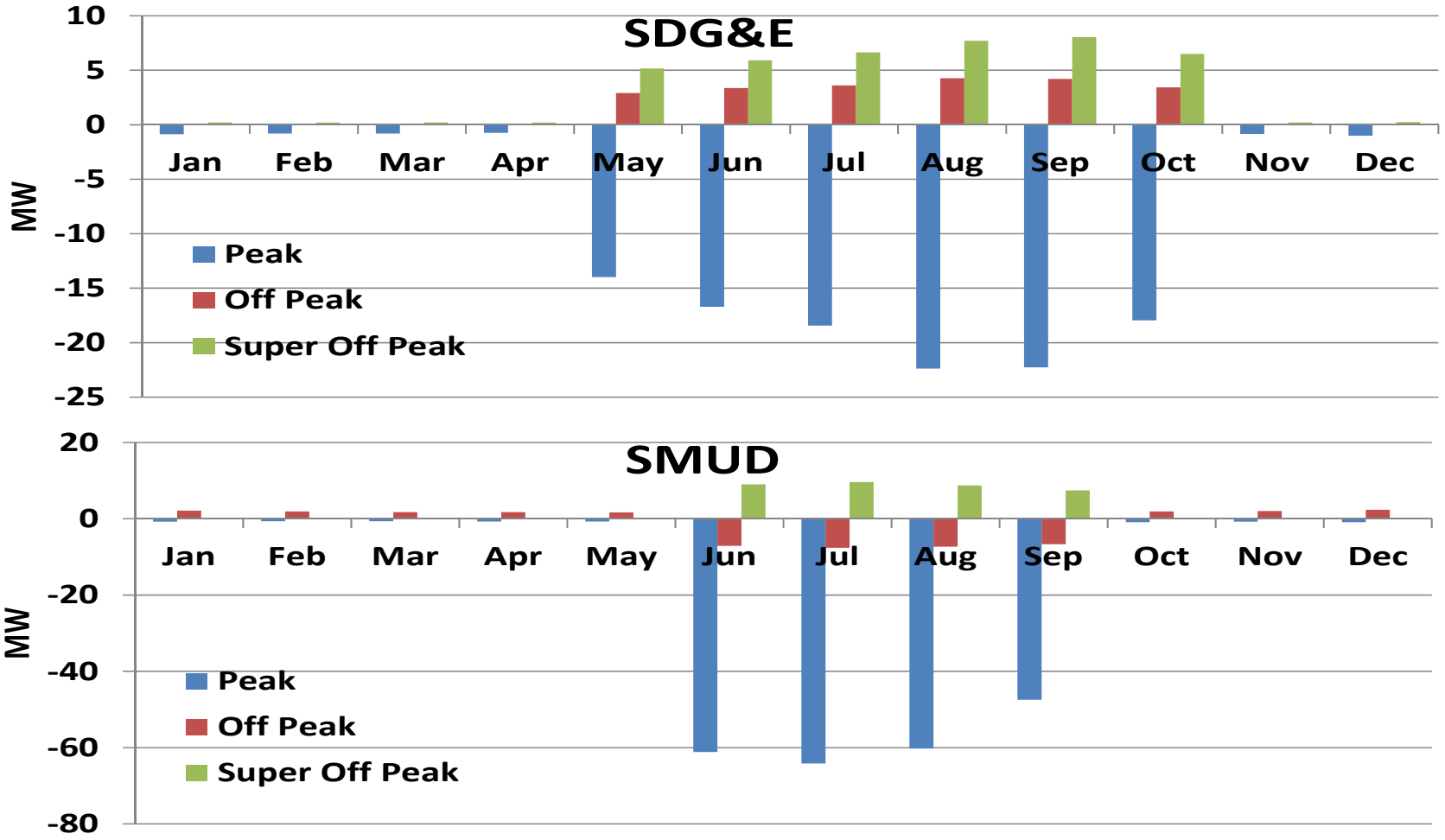
Average Peak Period Impacts August Weekday



Average Weekday Impacts by Month-2025 Mid Case



Average Weekday Impacts by Month-2025 Mid Case



Next Steps

- Consider opt-in pilot study full-year survey research and load impact results implications for energy and peak
- Develop hourly load impacts
  - Load profiles adjusted with AAEE and self-generation forecasts
- Revisit scenario assumptions with DAWG