

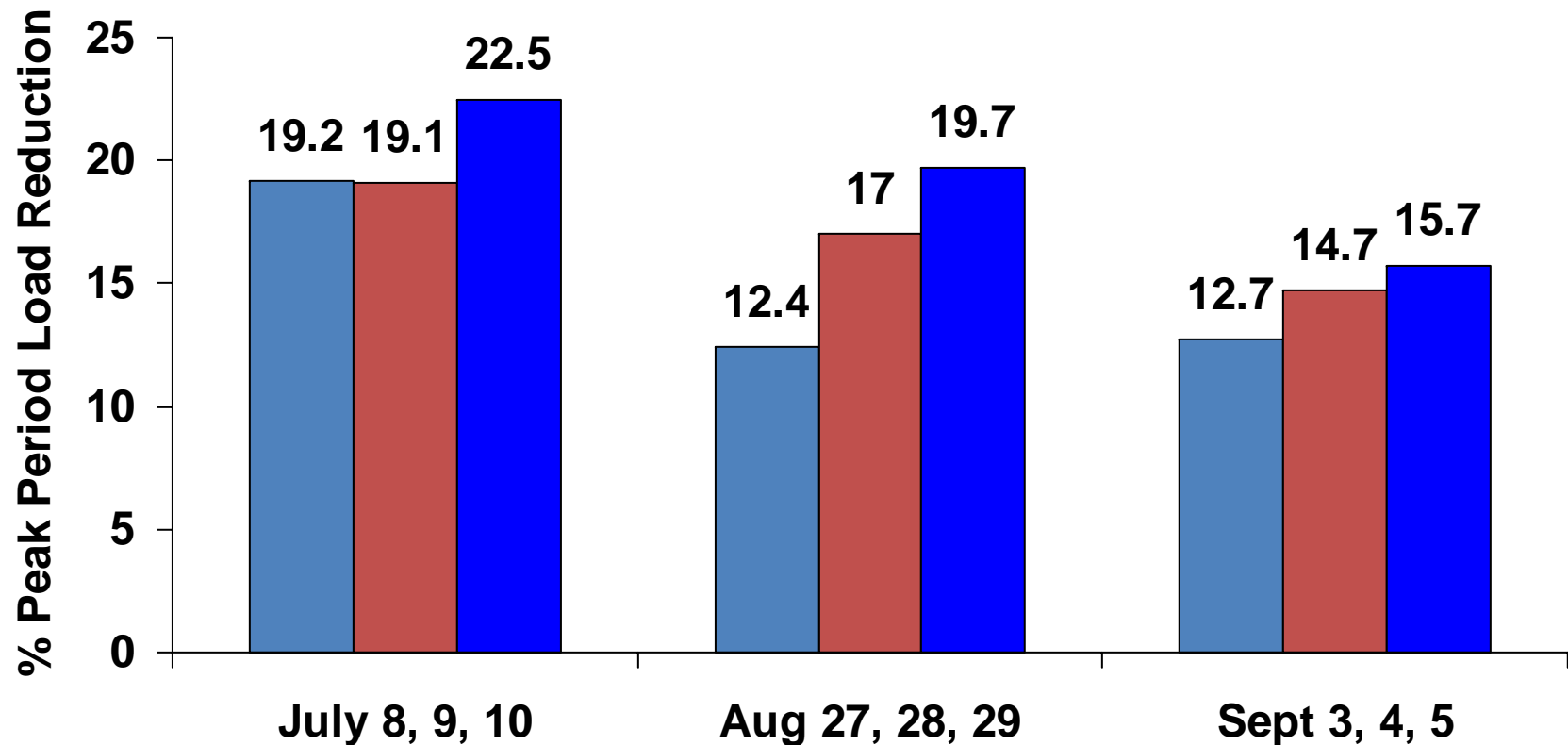
Demand Response Resources: 8 Fascinating Facts in 8 Minutes

Stephen S. George, Ph.D.
Principal Consultant
Freeman, Sullivan & Co.

- Answers to some key questions concerning demand response are emerging from recent empirical research
 1. Will residential customers continue to respond to dynamic price signals across multiple day events?
 2. What about non-residential customers?
 3. Will low income consumers sign up for dynamic tariffs?
 4. Will they respond to the price signals if they do sign up?
 5. Do enrollment rates for dynamic prices differ if enabling technology is offered along with price signals?
 6. How many non-residential customers will stay on a dynamic tariff if they are defaulted onto the rate?
 7. Are structural winners more likely to stay on a default dynamic rate?
 8. Can opt-out rates be influenced by information from account representatives?

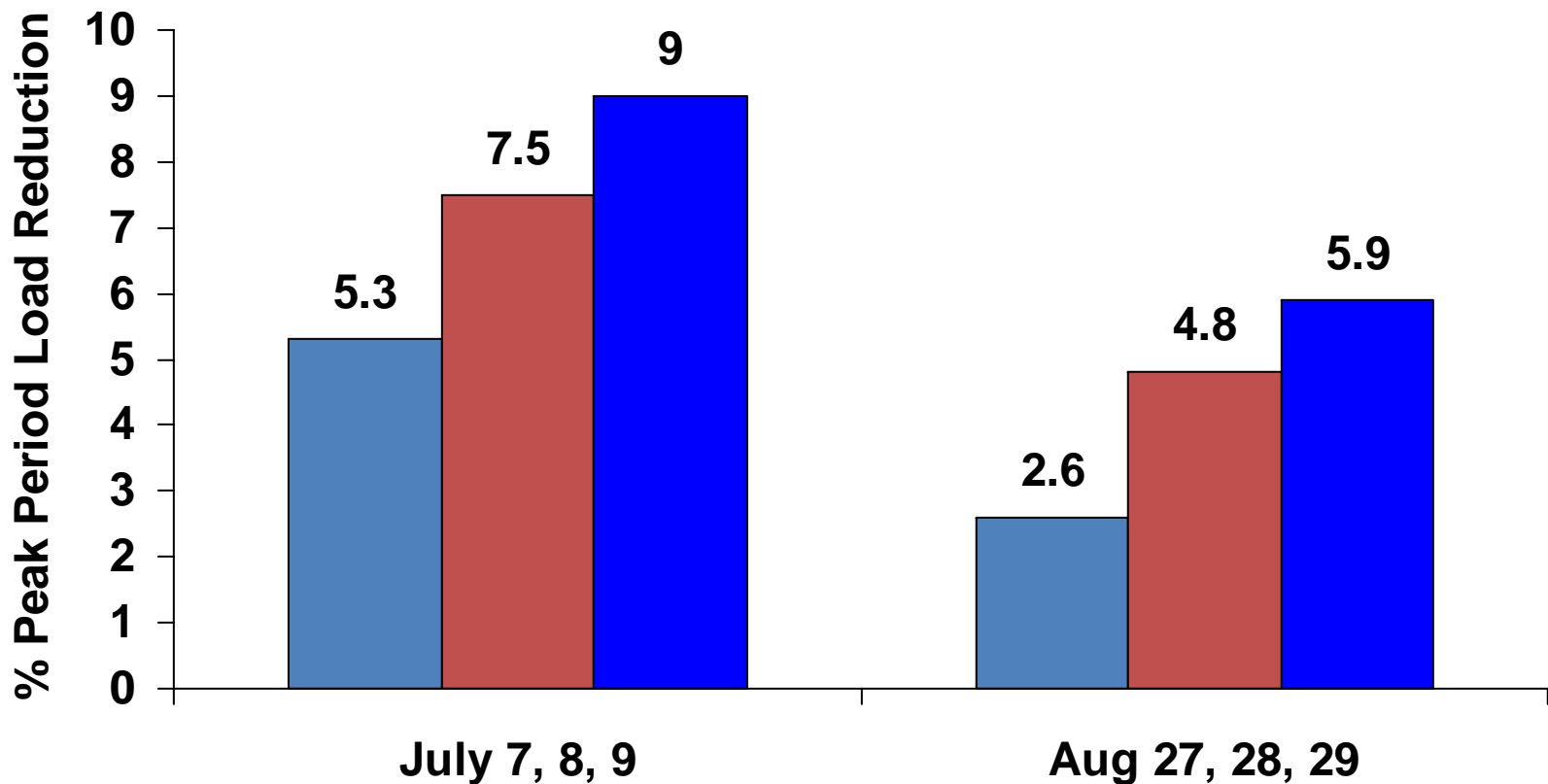
For PG&E's SmartRate Tariff, the Load Impacts Were Higher on the 3rd Day of Each 3-Day Event Sequence

% Peak Period Load Reduction for PG&E's Residential SmartRate Tariff (2008)



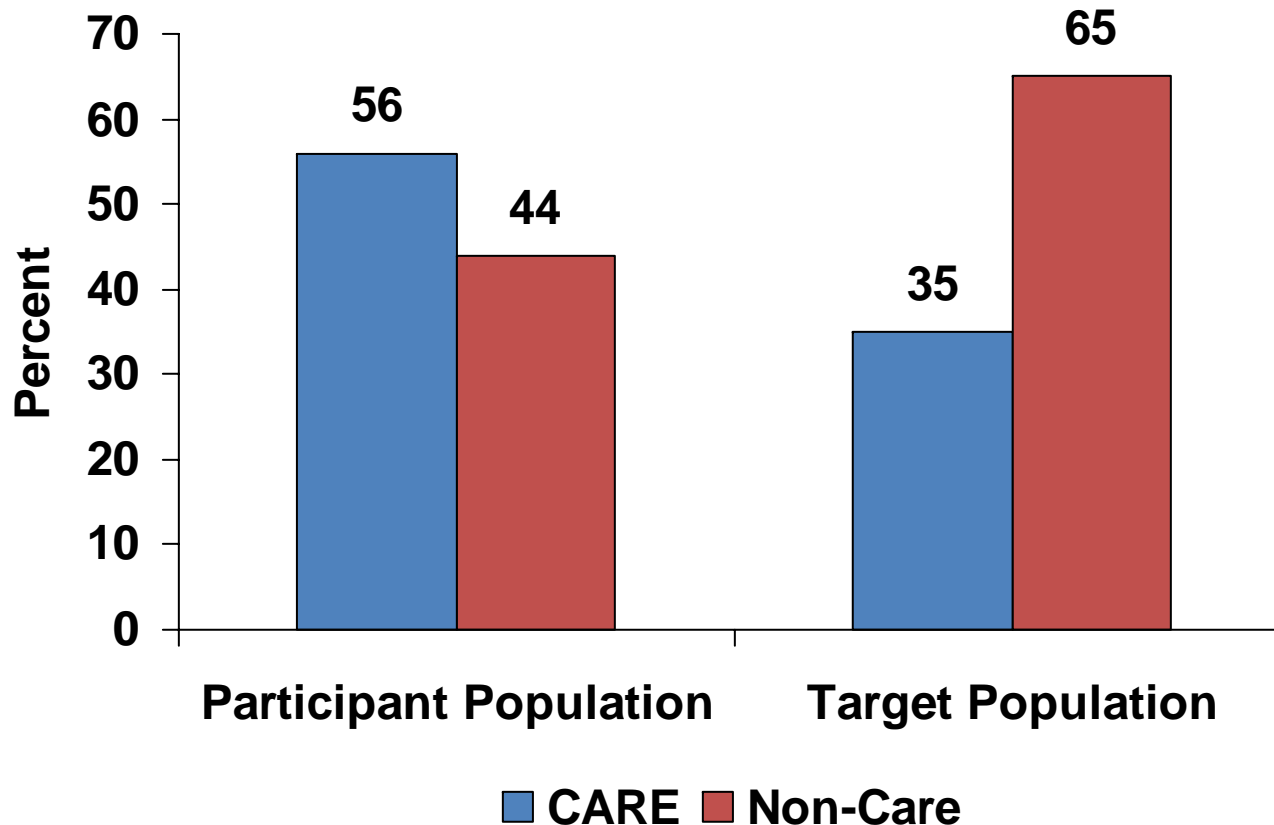
The Same Pattern of Load Reduction Across Multi-Day Events is Observed for PG&E's C&I CPP Tariff

% Peak Period Load Reduction for PG&E's Non-Residential (>200kW) Critical Peak Pricing Tariff



Low Income (CARE) Customers Enrolled in PG&E's SmartRate Tariff at a Much Higher Rate than Others

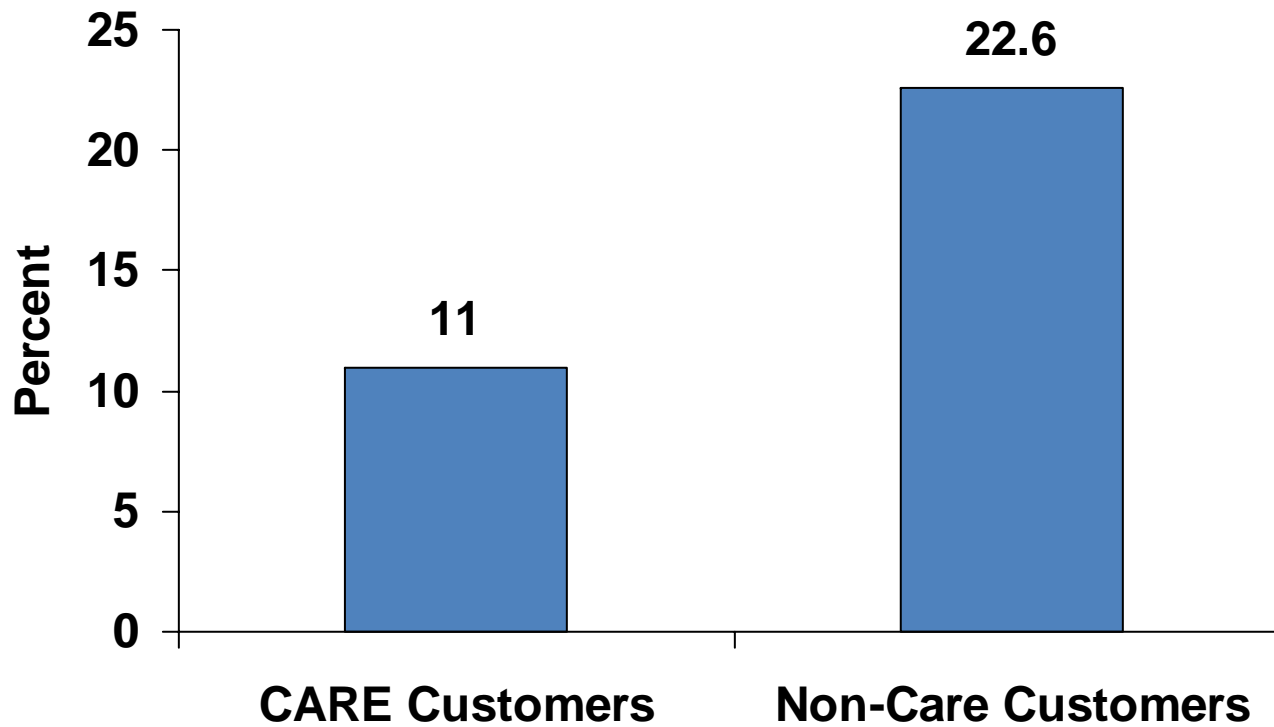
Percent of Customers in CARE Program



CARE stands for Customer Alternate Rates for Energy and is a program through which qualifying low income customers receive lower electricity rates

Low Income Customers Respond Less to Dynamic Prices but Still Reduce Load by A Significant Amount

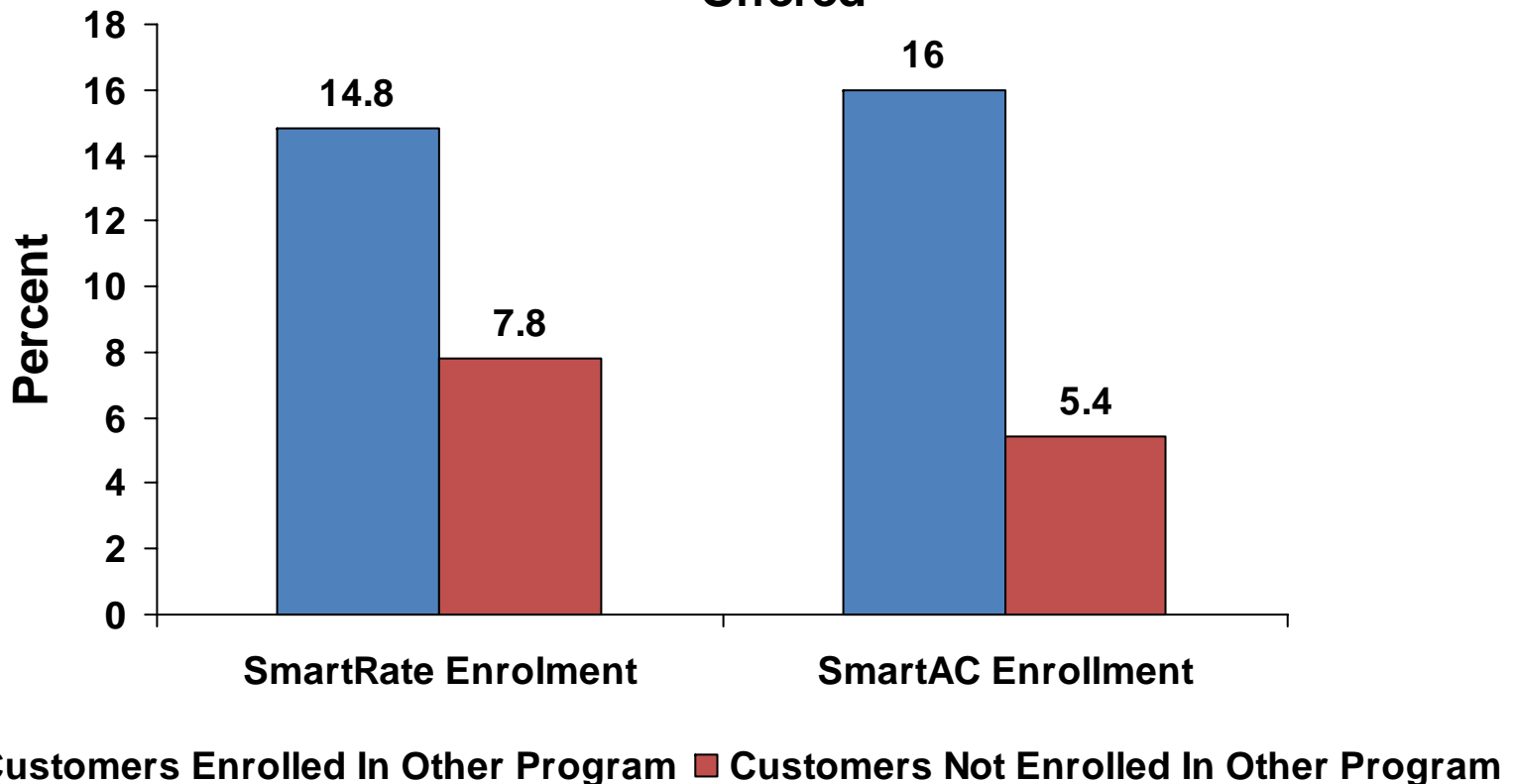
% Peak Period Load Reduction for PG&E's SmartRate Residential Customers Across 9 Event Days in 2008



CARE stands for Customer Alternate Rates for Energy and is a program through which qualifying low income customers receive lower electricity rates

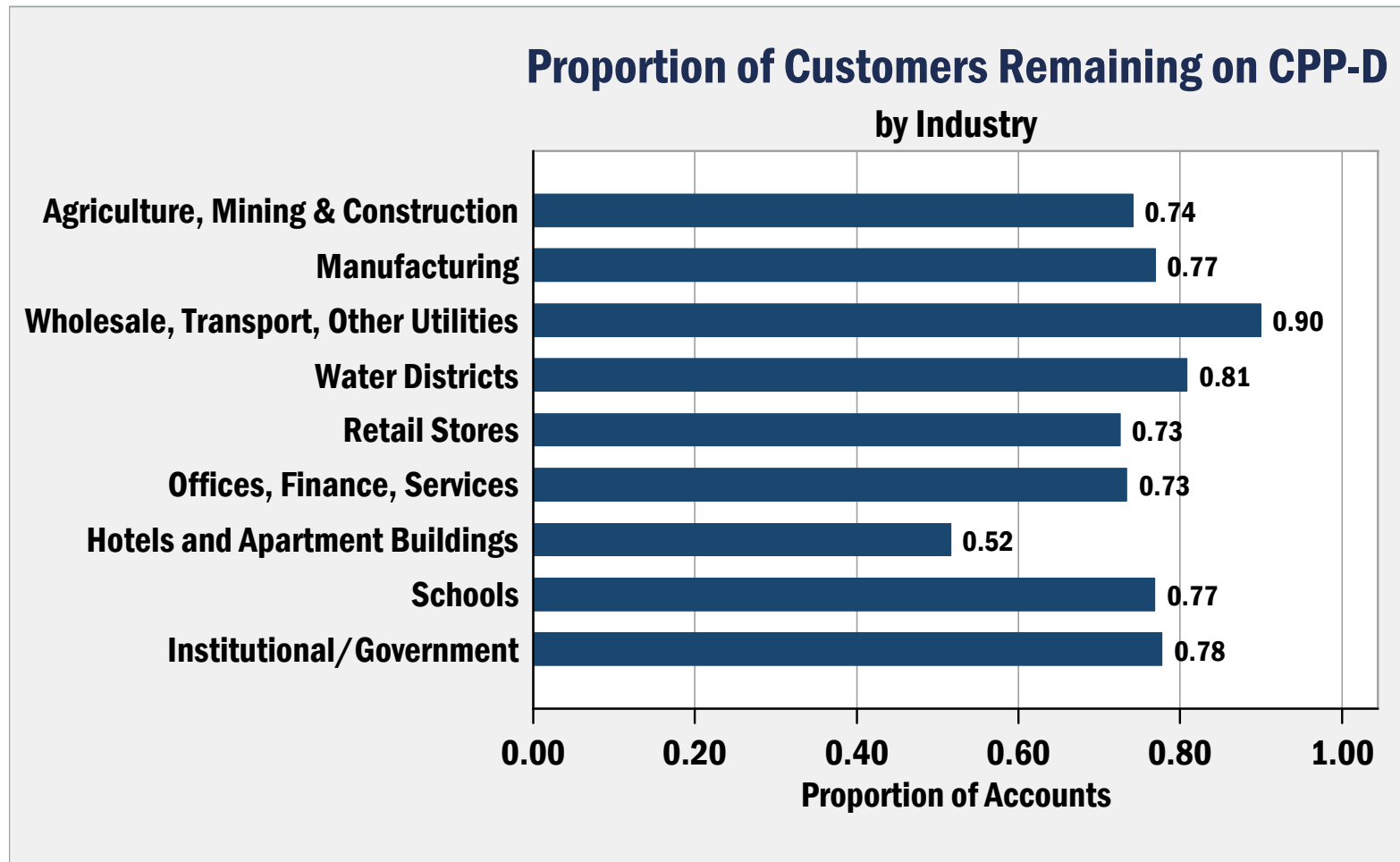
Dynamic Pricing Customers Sign Up For A/C Cycling At a Much Higher Rate than Customers on Flat Rates, and Vice Versa

Percent of PG&E Customers in SmarRate or SmartAC Programs Who Would Enroll in the Other Program if Offered



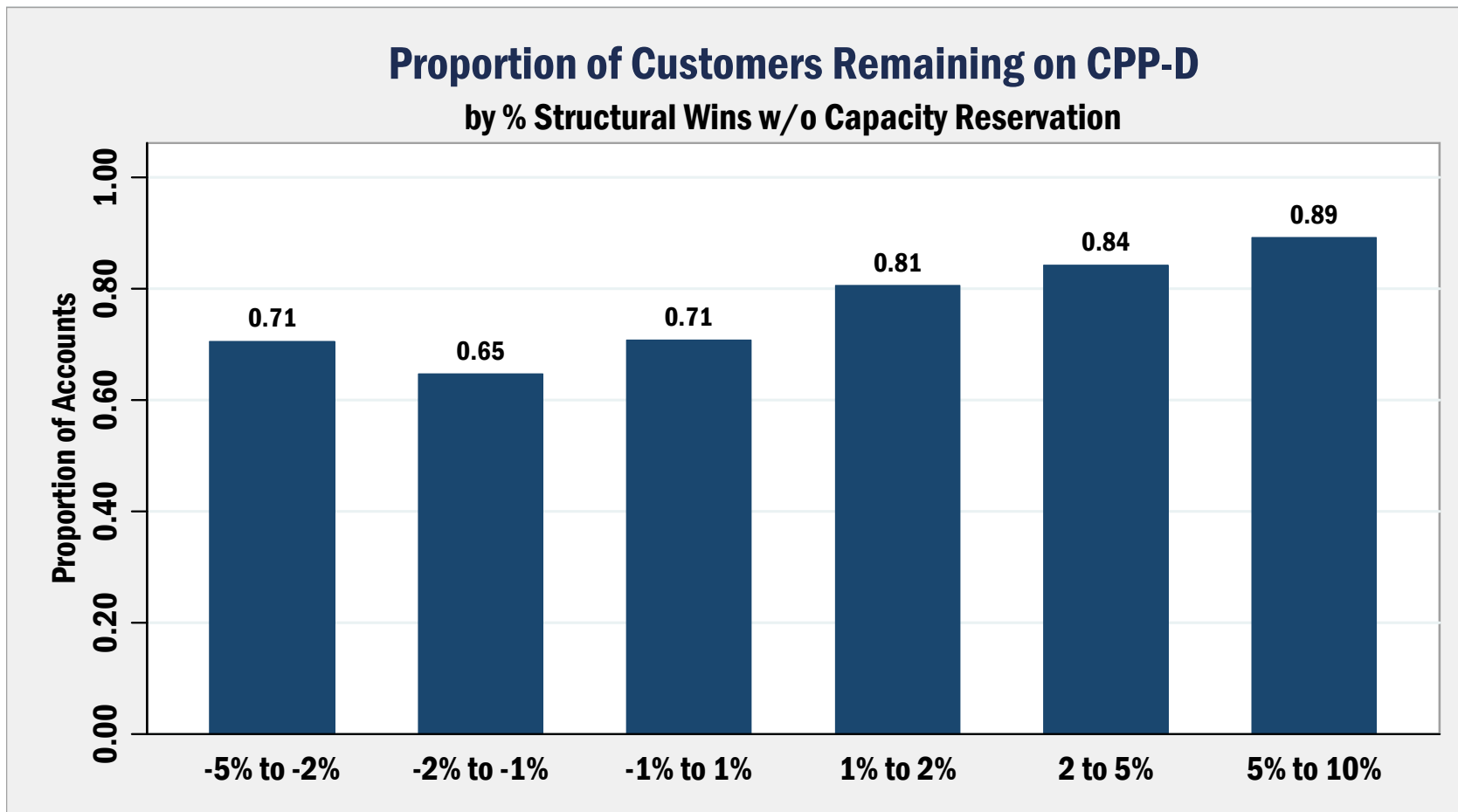
Based on Stated Preference Survey for PG&E's Program
Subsequent Offer of SmartAC to SmartRate Customers Showed Sign Up Rate of 14%

Most C&I Customers Defaulted onto SDG&E's Default CPP Rate Stayed On in the First Year



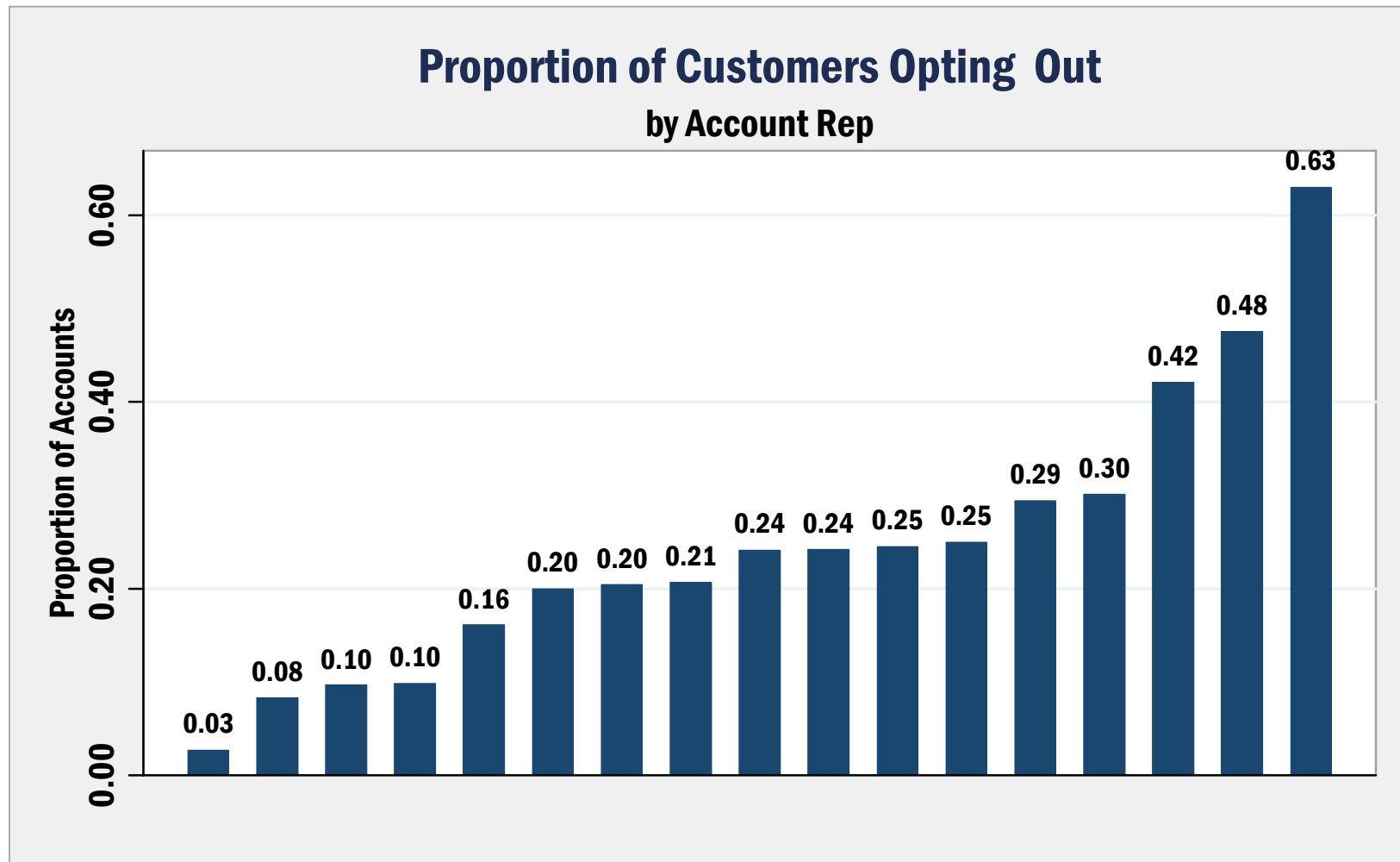
**Customers Had Bill Protection in the First Year
Alternative Rate was a Static TOU Rate**

The Higher the Structural Benefit, the Higher the Likelihood of Customers Remaining on Default CPP



Structural Benefit Equals the Percent Change in Bill Amount on New Tariff Compared to Otherwise Applicable Tariff Given No Change In Usage Pattern

C&I Account Representatives Significantly Influenced Customer Opt-Out Decisions For SDG&E's Default CPP Rate



Includes account reps with more than 20 assigned accounts. Most have over 100 assigned accounts.
Influence remains even after controlled for industry, size and customer load shapes.

The Moral of the Story

- Many assumptions (myths?) that often drive DR policy decisions are not true
 1. Residential customers will continue to respond to dynamic price signals across multiple day events
 2. So will non-residential customers
 3. Low income consumers sign up for dynamic tariffs at a higher rate than non-low income consumers
 4. Low income consumers respond less to dynamic price signals, but they still respond
 5. Residential customers on dynamic rates will sign up for a/c cycling at higher rates than customers on flat rates, and vice versa
 6. The majority of non-residential customers defaulted onto a dynamic tariff are likely to stay on the tariff, at least initially
 7. Customers who are better off on a dynamic tariff even without shifting somehow figure that out and have a higher propensity to stay on such a rate
 8. Utility account representatives can have a very significant influence on customer rate decisions