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Title: Plugging into an electric future

Abstract: Rooftop solar installations are proliferating in California and the state's requirement to move to 100% renewable electricity by 2045, per the terms set forth in Senate Bill 100, will only accelerate this trend. Like solar, improvements in battery technologies and the resultant advances in electric vehicles indicate that the market is poised for growth in the next decade with some estimates at 22% EV penetration by 2025 from less than 3% today. Self-generation through solar PV and EV charging influence households' load shape and total energy consumption significantly. To a lesser extent, battery storage, heat pumps, and heat pump water heaters contribute to this broader trend of electrification. These technologies collectively will have a significant impact on energy consumption and necessitate a greater understanding of customer decisions related to electrification trends. This presentation will showcase findings from an extensive study conducted amongst over 19,000 residential customers in California that will shed light on topics such as:

- 1) Adoption of emerging technologies such as solar, EVs, storage, and heat pumps
- 2) Variability in adoption of technologies by demographics, climate zone, and dwelling characteristics
- 3) The relationship between current electricity consumption, engagement in utility energy efficiency programs, and willingness to adopt emerging technologies
- 4) Willingness to participate in time-of-use rates and demand response programs enabled by smart meters and adoption of new technologies in the household
- 5) Diffusion of innovation curves by technology and customer segments

Findings from this research on electrification trends will be relevant to applications spanning residential programs, program design, and transportation. This presentation will be of interest to utilities, program staff, and technology solution providers looking for key energy customer insights in a rapidly evolving market.