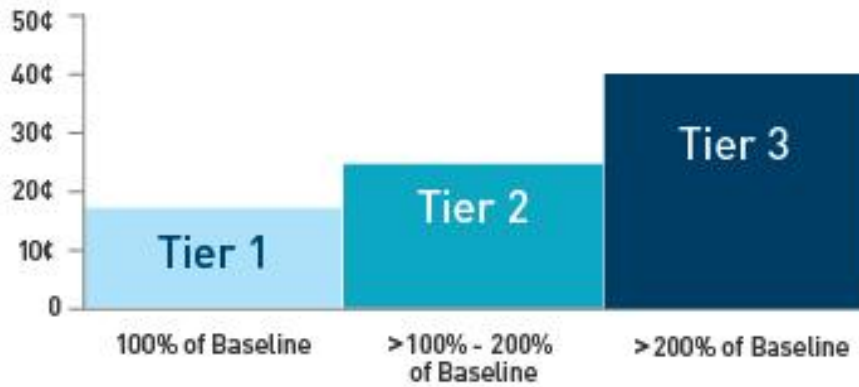


Time of Use Electric Rates

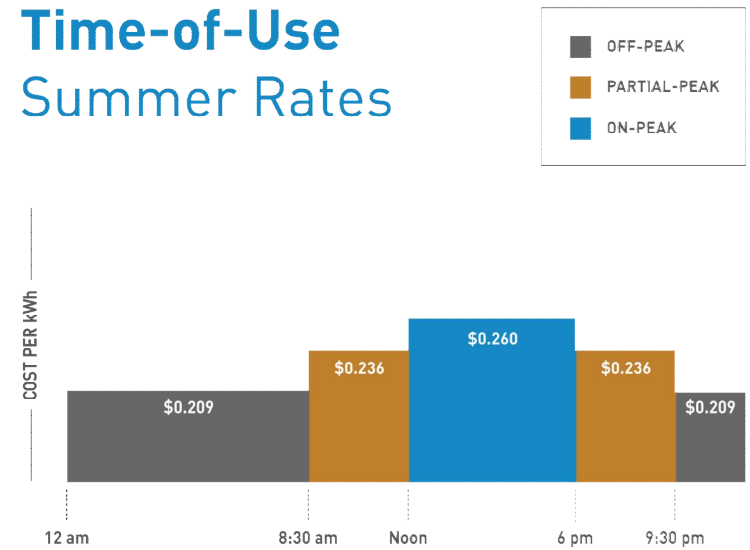
A residential customer perspective.

Christina Machak – Center for Sustainable Energy

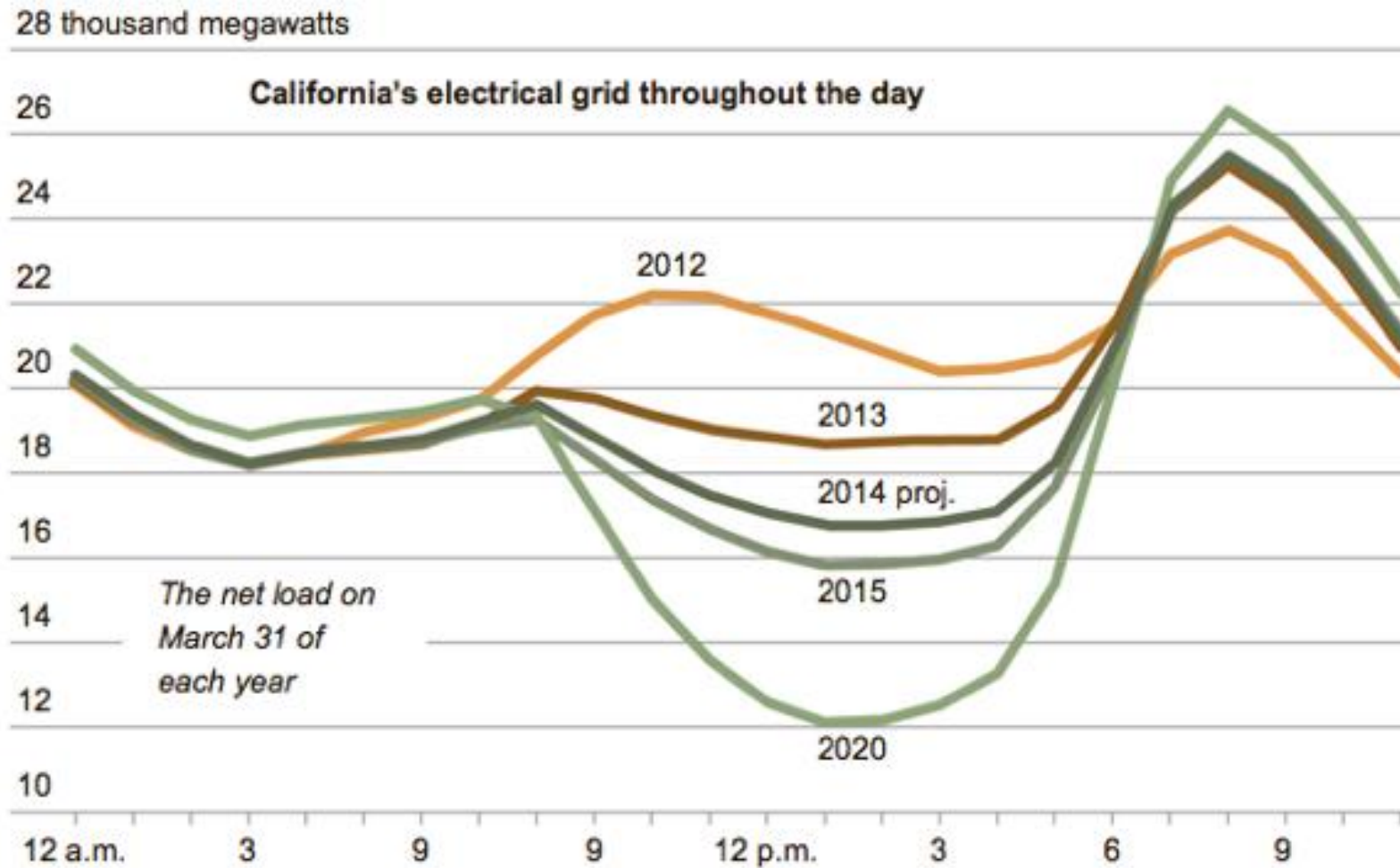
Background



Time-of-Use Summer Rates



Background



Source: CalISO

Background

ENERGY & ENVIRONMENT

Why Home Solar Panels No Longer Pay in Some States

JULY 26, 2016

The New York Times



What Will California Do With Too Much Solar? APRIL 4, 2016

Research Design

- Sample made up of 223 single family homes with at least 2 years of 15 minute interval consumption (no solar, not on EV TOU rates)
- SDG&E current DR, DR-SES, and TOU-DR rates modeled as base rate cases
- Solar PV system production modeled using PV watts with system sized to 80% of annual consumption
- No money down solar lease with a monthly payment of \$25/kW

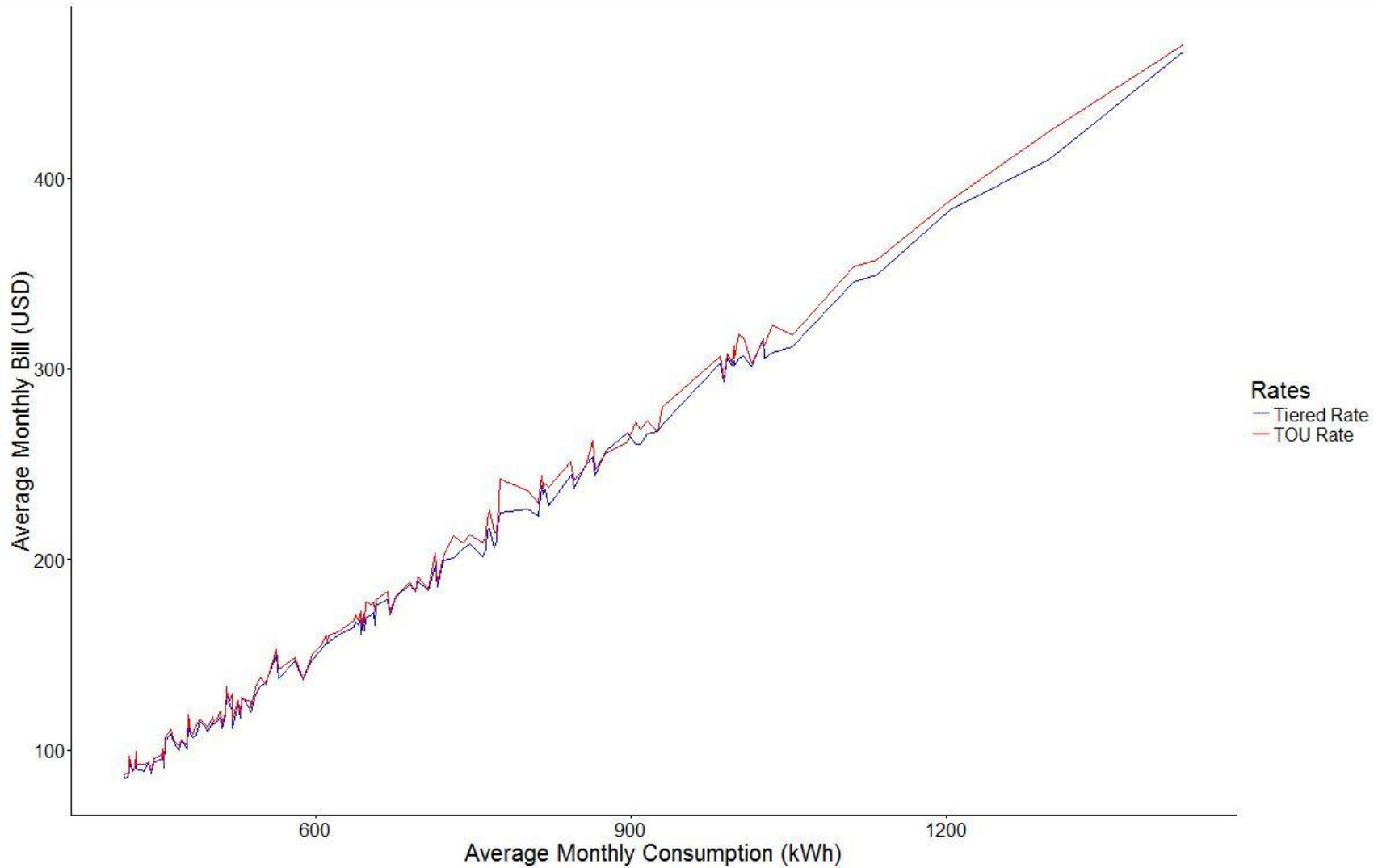
Research Questions

- How will a household's electric bill change under the new rate structure(s)?
- How will the bill changes affect the value proposition for other energy saving measures (e.g. home retrofits or smart appliances)?
- How will the rate-restructuring affect homeowners interested in installing rooftop solar?
- Will vulnerable populations (e.g. the elderly who remain at home during peak load hours, low and moderate income families living in older, less energy-efficient homes) see an increase in their bill?

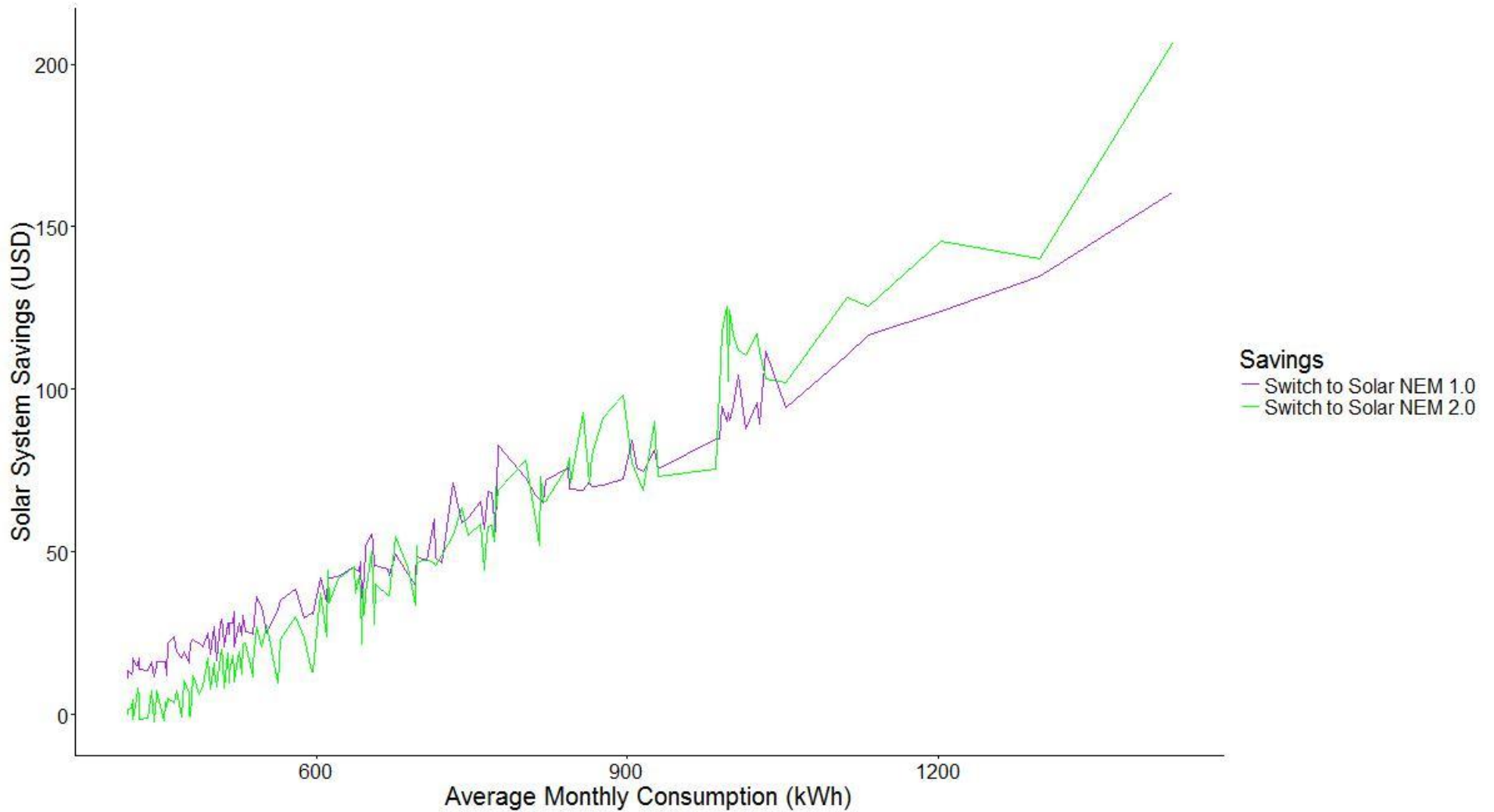
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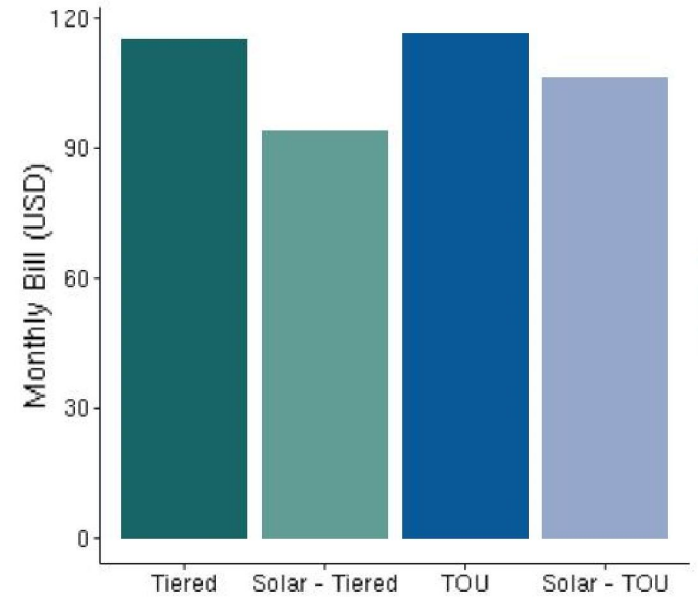
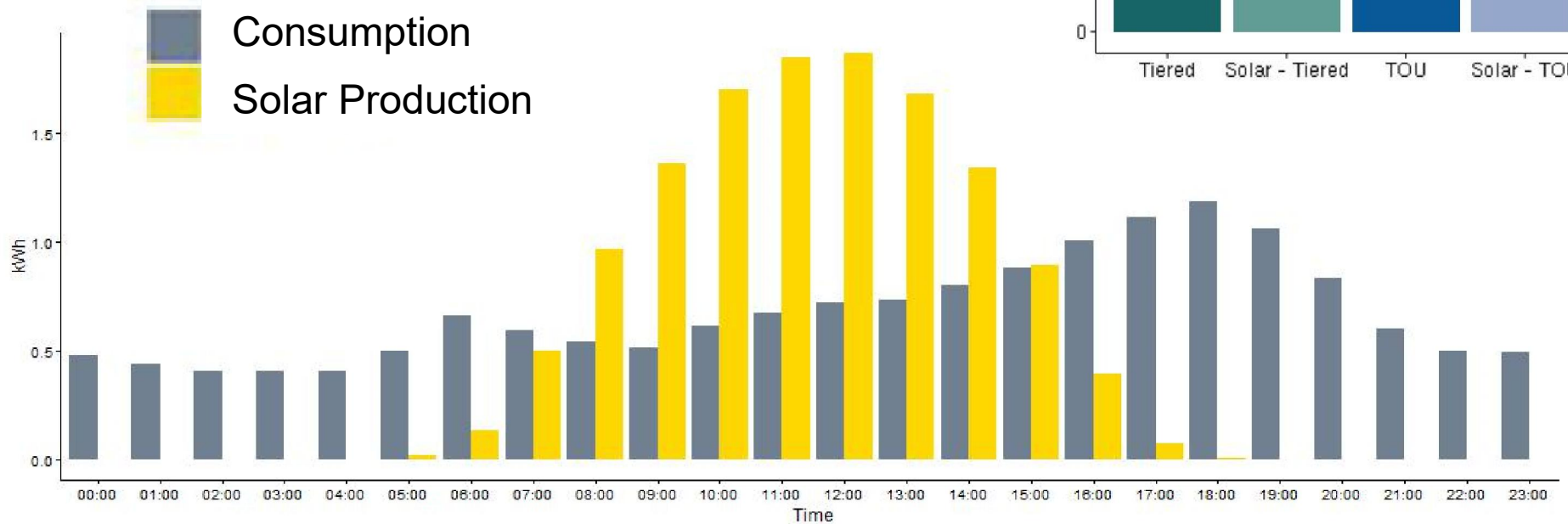
Time of Use vs Tiered Rates



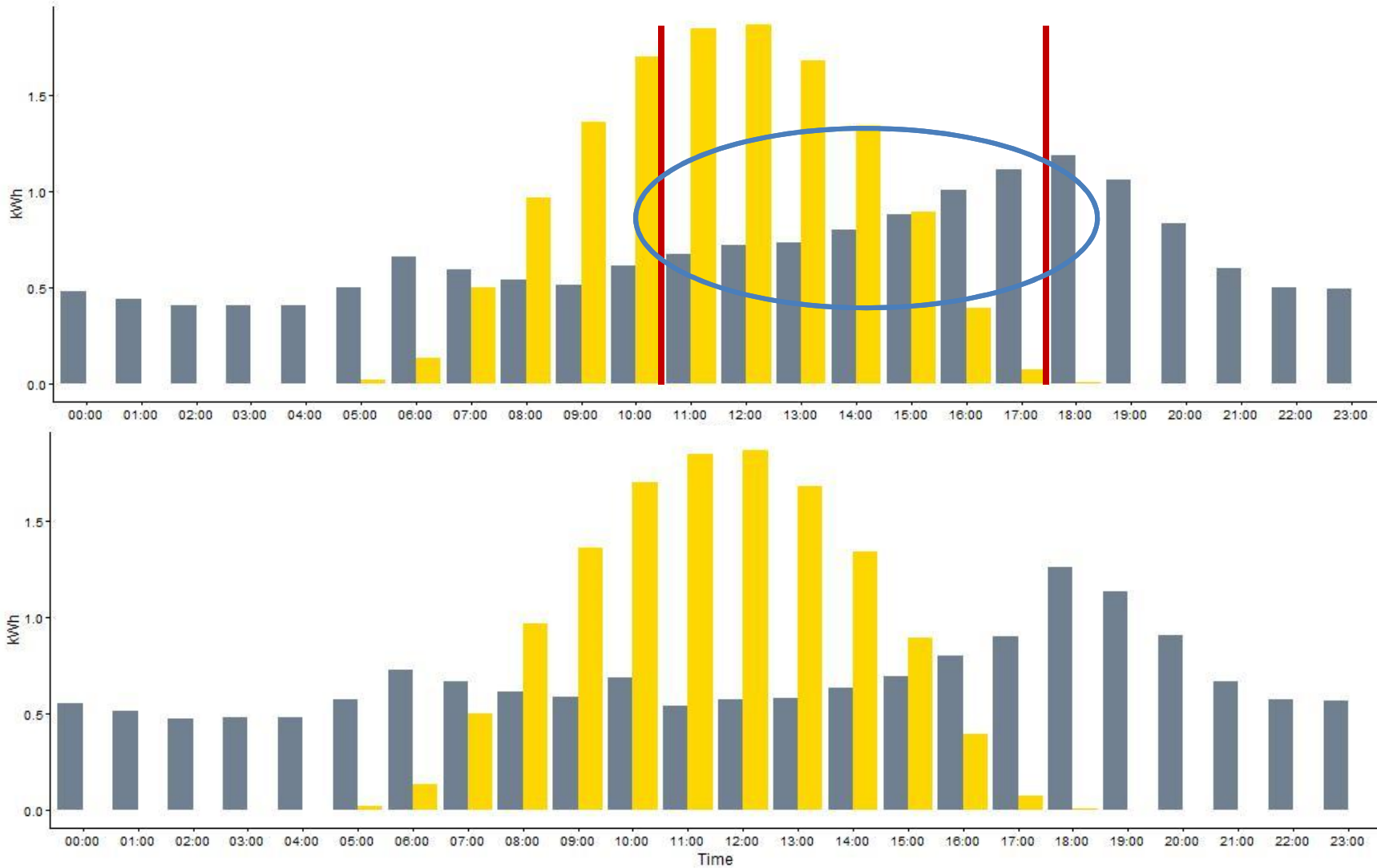
Solar Value Proposition



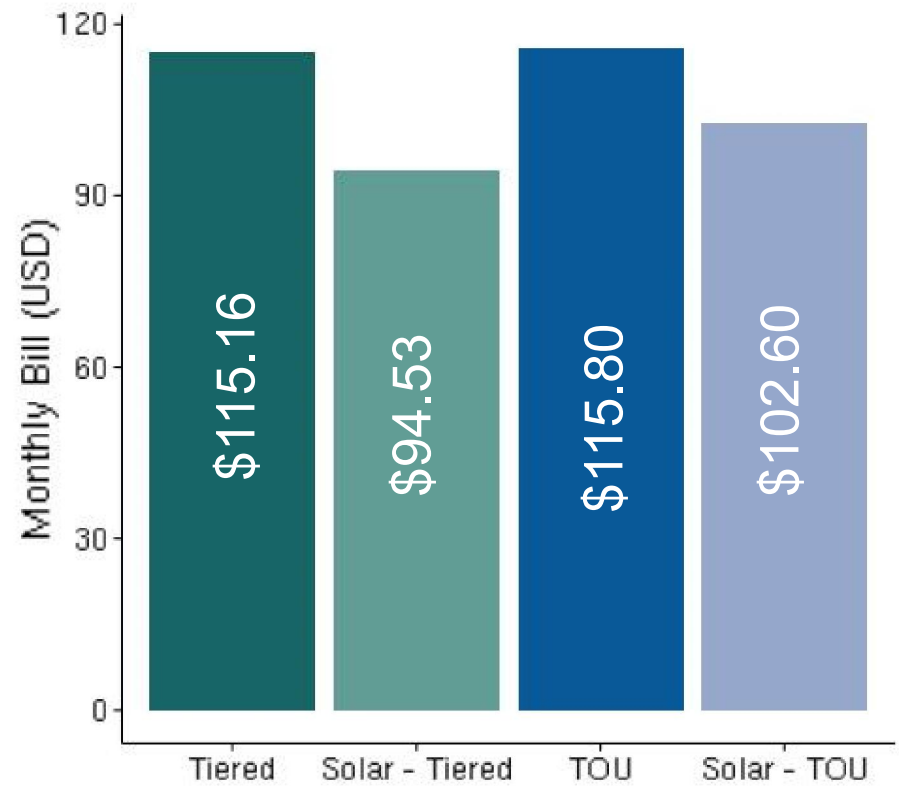
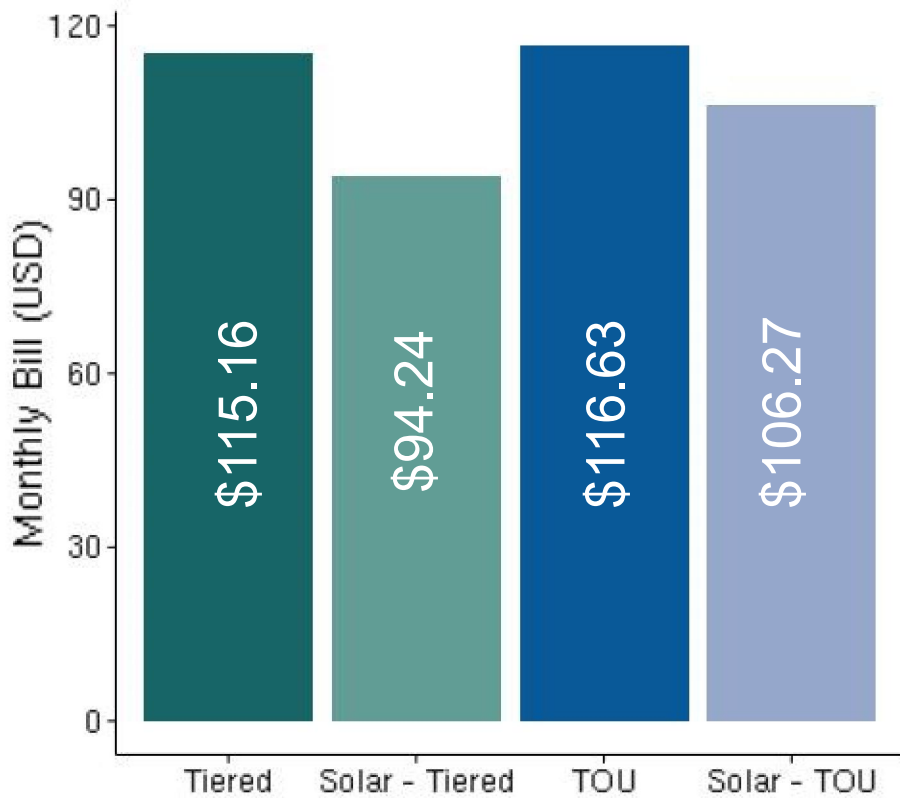
Example Customer



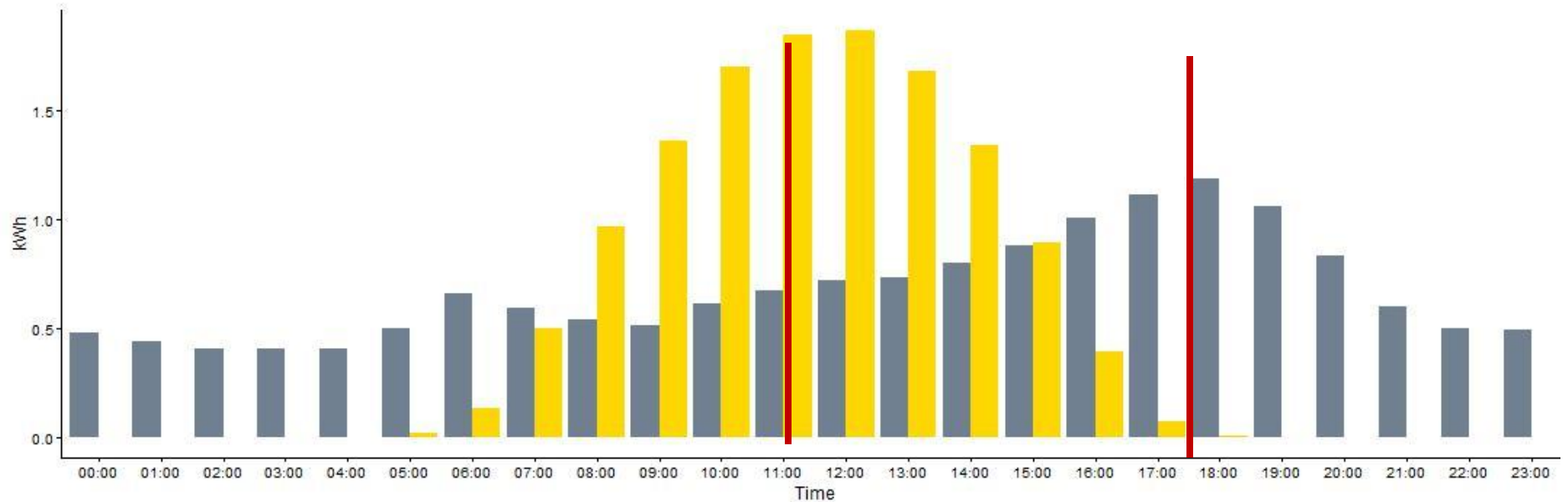
Shift Consumption to 'Off-Peak'



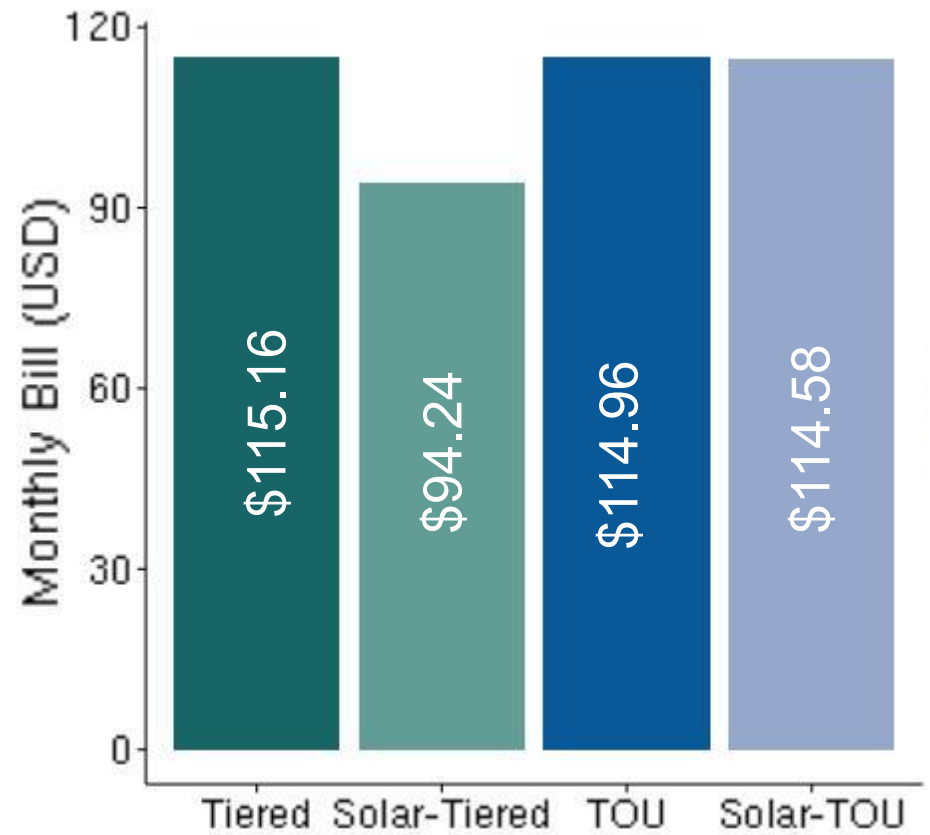
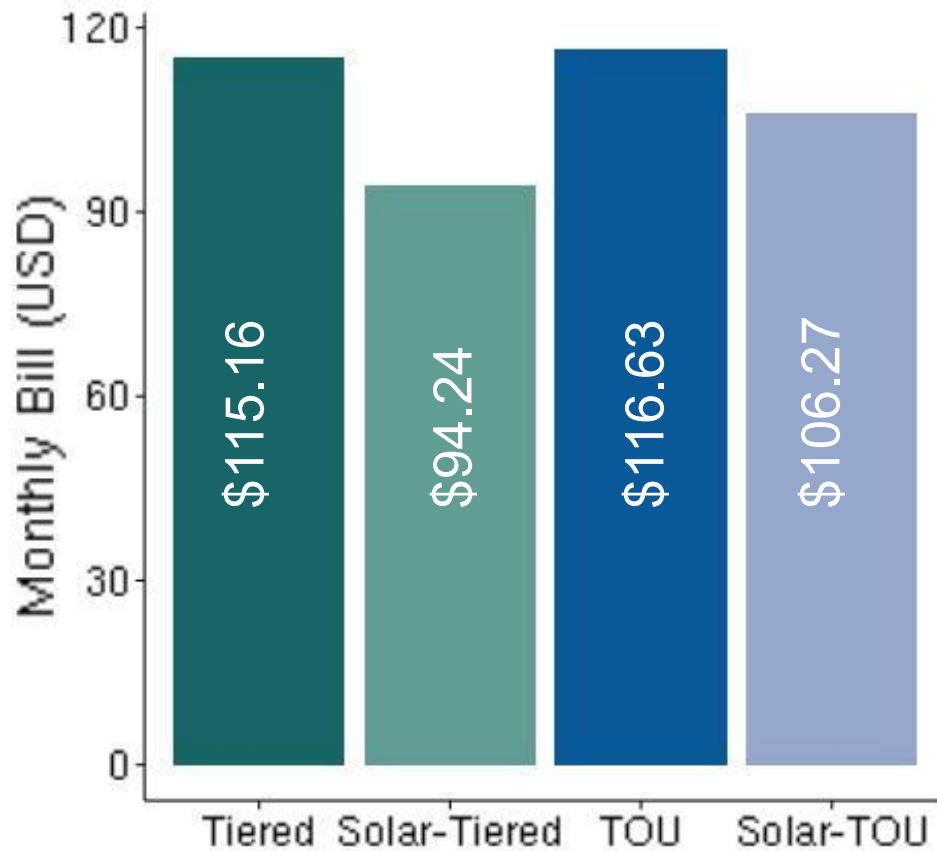
Shift consumption to 'Off-Peak'



Shift the 'On-Peak' period forward two hours



Shift the 'On-Peak' period forward two hours



Conclusions and Next Steps

- TOU rates will change the value proposition for residential solar. A more detailed exploration of how these rates will change the value proposition for solar with storage or load shifting technologies is needed.
- The magnitude of these price changes for an individual consumer are important to consider when designing programs and incentives to encourage adoption of new technologies and behaviors.
- How to communicate these changes to consumers?



Thank you!

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