

# Time-of-Use Pilot Customer Insights\*

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\*Supported by  
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# Purpose of this session

- SCE Opt in Pilot TOU Rates \*\*\*
- Load and Bill impacts
- Operational learnings
- Key Takeaways

\*\*\*Opt-in TOU rates were tested – and a modified version of these rates are being rolled out for SCE's Default TOU Pilot

# TOU Opt-in Pilot Rates Overview

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**Figure 4.1-1: SCE Pilot Rate 1 (January 2017)<sup>28</sup>**

Tariff	Season	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	
Weekday	Summer	Super Off-Peak (23.2¢)								Off-Peak (27.8¢)						Peak (34.8¢)										
	Winter	Super Off-Peak (22.7¢)								Off-Peak (22.7¢)						Peak (27.3¢)										
Weekend	Summer	Super Off-Peak (23.2¢)								Off Peak (27.8¢)																
	Winter	Super Off-Peak (22.7¢)								Off Peak (22.7¢)																

**Figure 4.1-2: SCE Pilot Rate 2 (January 2017)**

Tariff	Season	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	
Weekday	Summer	Super Off-Peak (17.6¢)								Off-Peak (29.1¢)								Peak (55.2¢)								
	Winter	Super Off-Peak (17.7¢)								Off-Peak (25.5¢)								Peak (27.6¢)								
Weekend	Summer	Super Off-Peak (17.6¢)								Off-Peak (29.1¢)																
	Winter	Super Off-Peak (17.7¢)								Off-Peak (25.5¢)																

**Figure 4.1-3: SCE Pilot Rate 3 (January 2017)**

Tariff	Season	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
Weekday	Summer	Off Peak (16.3¢)											Peak (22.6¢)				Super On-Peak (37.0¢)								
	Winter	Off Peak (18.3¢)															Mid Peak (21.1¢)								
	Spring	Off Peak (18.3¢)											Super Off Peak (10.0¢)				Peak (25.0¢)								
Weekend	Summer	Off Peak (16.3¢)																Mid Peak (18.7¢)							
	Winter	Off Peak (18.3¢)											Super Off Peak (10.39¢)				Mid Peak (21.1¢)								
	Spring	Off Peak (18.3¢)											Super Off Peak (10.0¢)				Mid Peak (21.1¢)								

# Study overview

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# Opt in pilot study design

- Randomized encouragement design
- RCT design where participants were first recruited into the study and then randomized into control or treatment
- Over-represented participation for mandated income categories (CARE/ FERA enrollment, income level guidelines , hot climate zones)
- ~50,000 customers enrolled
- After enrollment, response rates averaged 80% for SCE, 82% overall.
- *Documented in the First Interim Report for **California Statewide Opt-in Time-of-Use Pricing Pilot** . Prepared by Nexant, Inc. & Research Into Action.*  
<http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442453144>.

# Opt in pilot study design & timeline

- Impacts on peak load and bills examined through meter interval data and monthly bills by Nexant, Inc.
- Impacts on health and economic ability examined through 2 surveys to customers : administered by Research Into Action, Inc.
- First customer bills: June-July 2016
- First Interim Report : April 2017
- Second Interim Report : Nov 2017
- Final Report : March 2018

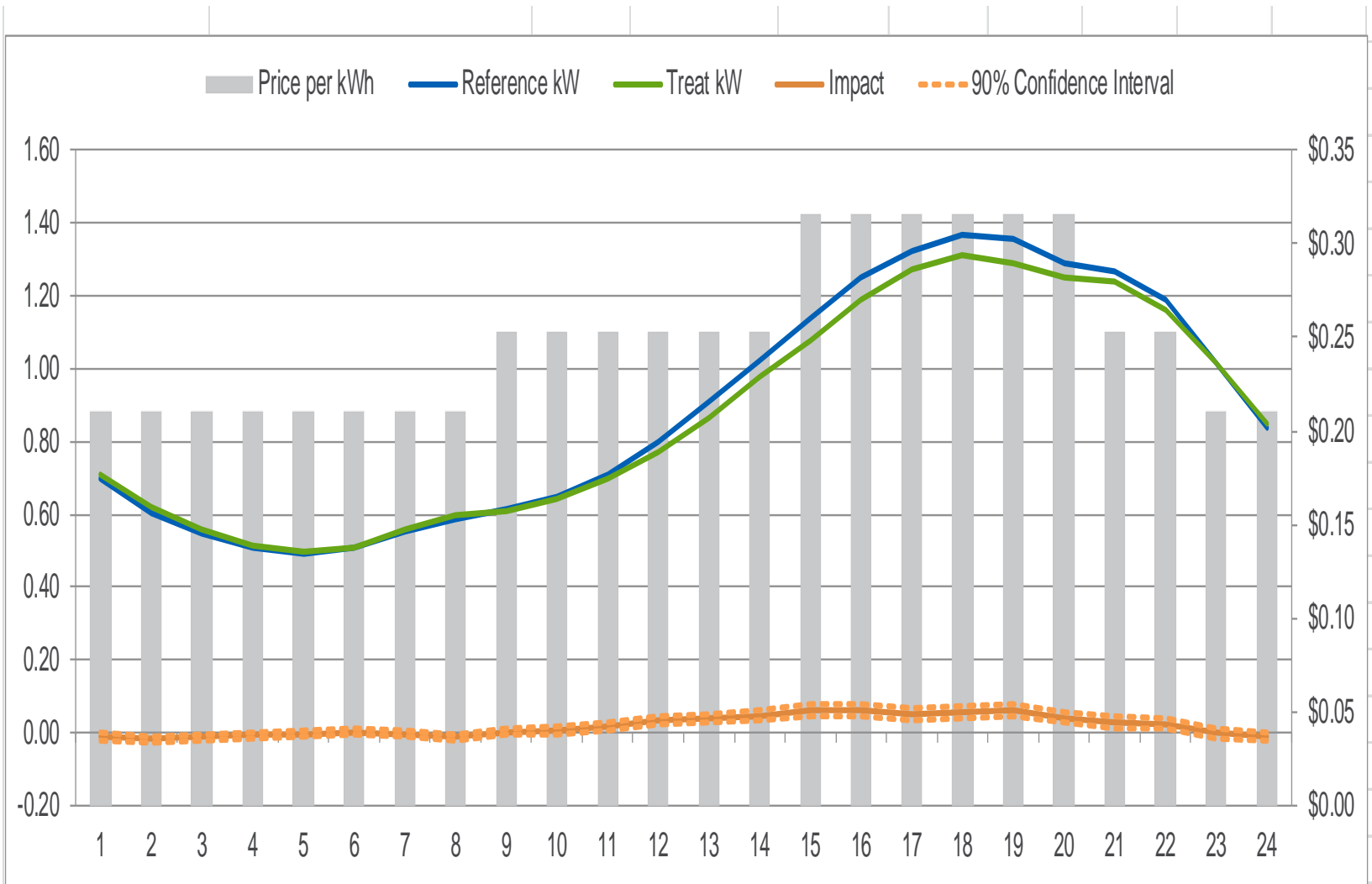
# Load impacts from Opt in TOU rates



# Findings

- A difference in difference fixed effects regression using pre-treatment and post-treatment design
- Customers shifted load by varying amounts
  - Customers on TOU rates were more likely to take time-specific actions than customers in the OAT<sup>1</sup>. E.g., a larger proportion of treatment customers indicated they shifted doing laundry, running the dishwasher, and increased their thermostat during peak hours.
- Absolute Peak Impact (0.06KW)
- Percent Impact (~ 3.2- 4.4%)
- Most rates and customer segments showed a small conservation effect
- Similar peak reductions between Non CARE/FERA and CARE/FERA customers

<sup>1</sup> Otherwise applicable tariff



# Bill Impacts

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# Findings

- Load shifting / behavior partially mitigated some bill impacts ( ranges: \$2.21 – \$3.37, 1.7- 2.7% )
- Some segments experienced high bills during the summer. Participants reported no increased difficulty in paying these bills, however, customer hardship is being examined for the full year.

## Notes:

- First bill from TOU – Customers had no prior experience, and SoCal has hot summers
- Bill impacts were expected to be high
- Rates were seasonal *designed* to be higher in summer and lower in winter

# Survey findings

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# Findings

- Economic index was measured through questions on difficulty paying bills and financial concerns about money.
- Medical health was indexed through self report.
- Customer satisfaction with SCE and Rates were also examined
- Overall, being on the TOU rates did not substantially increase economic hardship for CARE/FERA and CARE/FERA eligible customers.
- Being on the TOU rates also did not substantially increase economic hardship for seniors within households.

# Operational Learnings

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# Operational findings

- Pretesting to help streamline the pilot process was successful
  - E.g. incentive amounts, use of fedEx envelopes.
- Streamlining of customer communications
  - Different customer departments as well as survey implementer needed to be in-sync
- In-language needs
  - Various languages were tested ( Korean, Vietnamese, Mandarin & Spanish)- Spanish had the greatest need for our customer base.



# Behavioral Insights

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# Key Takeaways

- Customers will shift behavior in response to TOU rates: we found both shifts in peak usage as well as overall conservation effects
- High differentials and longer peaks both had similar load peaks – high differentials might be preferable for effective behavioral measures
- Timing of TOU rates is important – starting on winter would be largely preferential compared with starting during the summer
- Adequate time to build in rates and finalize customer communication is important
- Utilizing a rigorously designed randomized controlled trial means that SCE and the CPUC has strong evidence based information that can be utilized for future program design and implementation.