

DOCKETED

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Learning to Love Ducks: DR in California

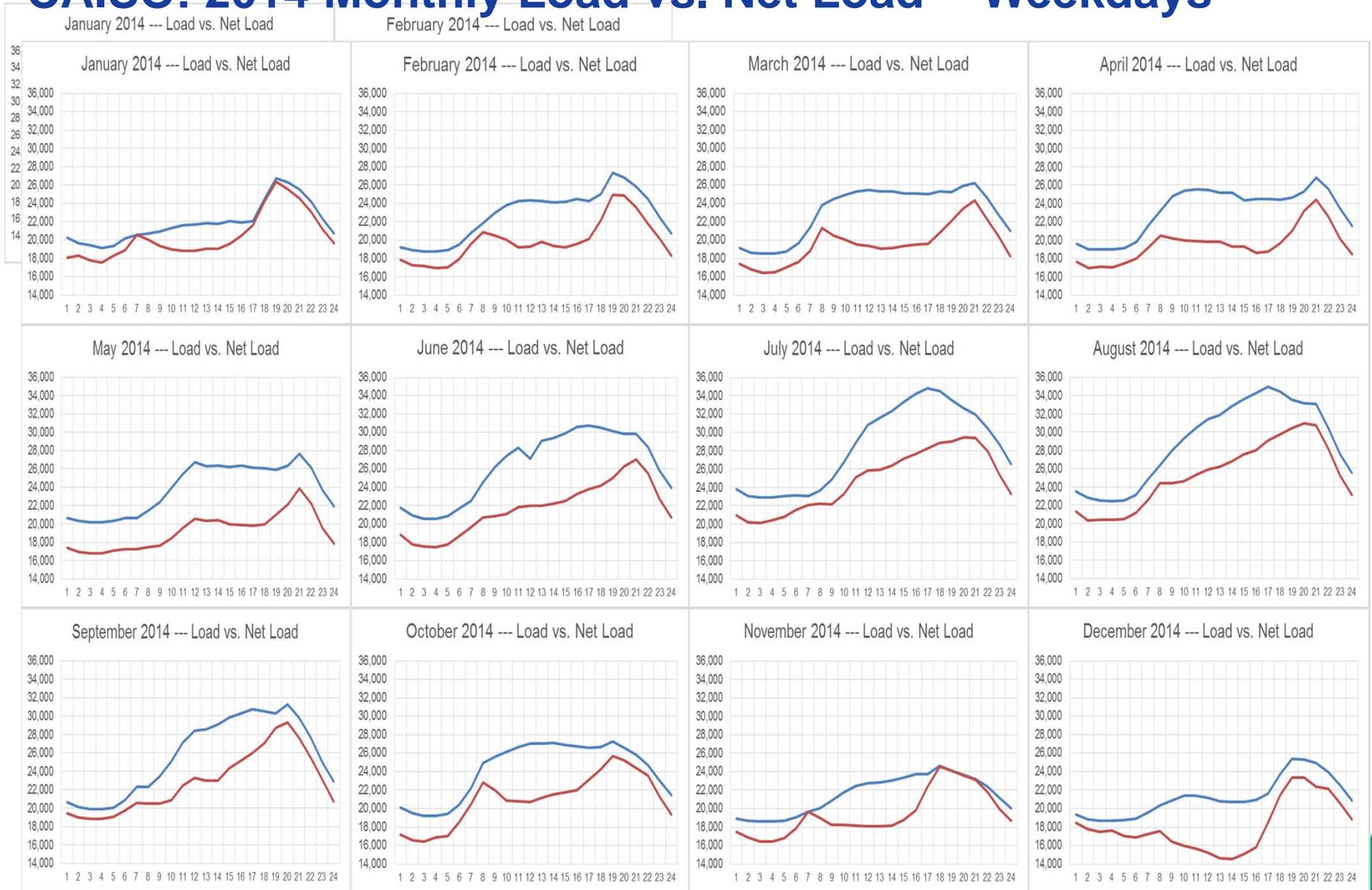
August 9, 2017

Jamie Fine, Senior Economist



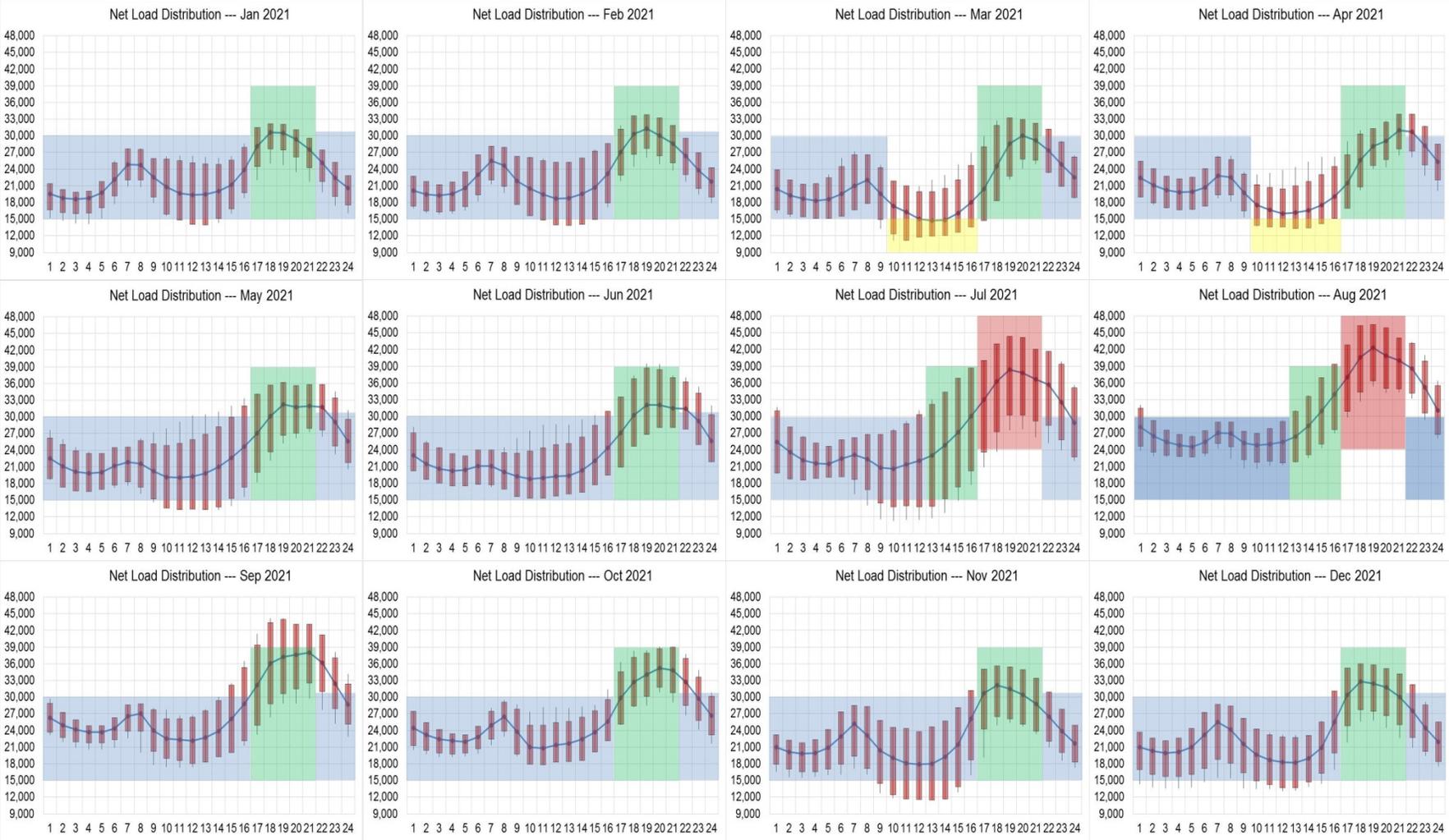
CA is embracing the “net load” duck with TOU rates.

CAISO: 2014 Monthly Load vs. Net Load -- Weekdays



— Load — Net Load

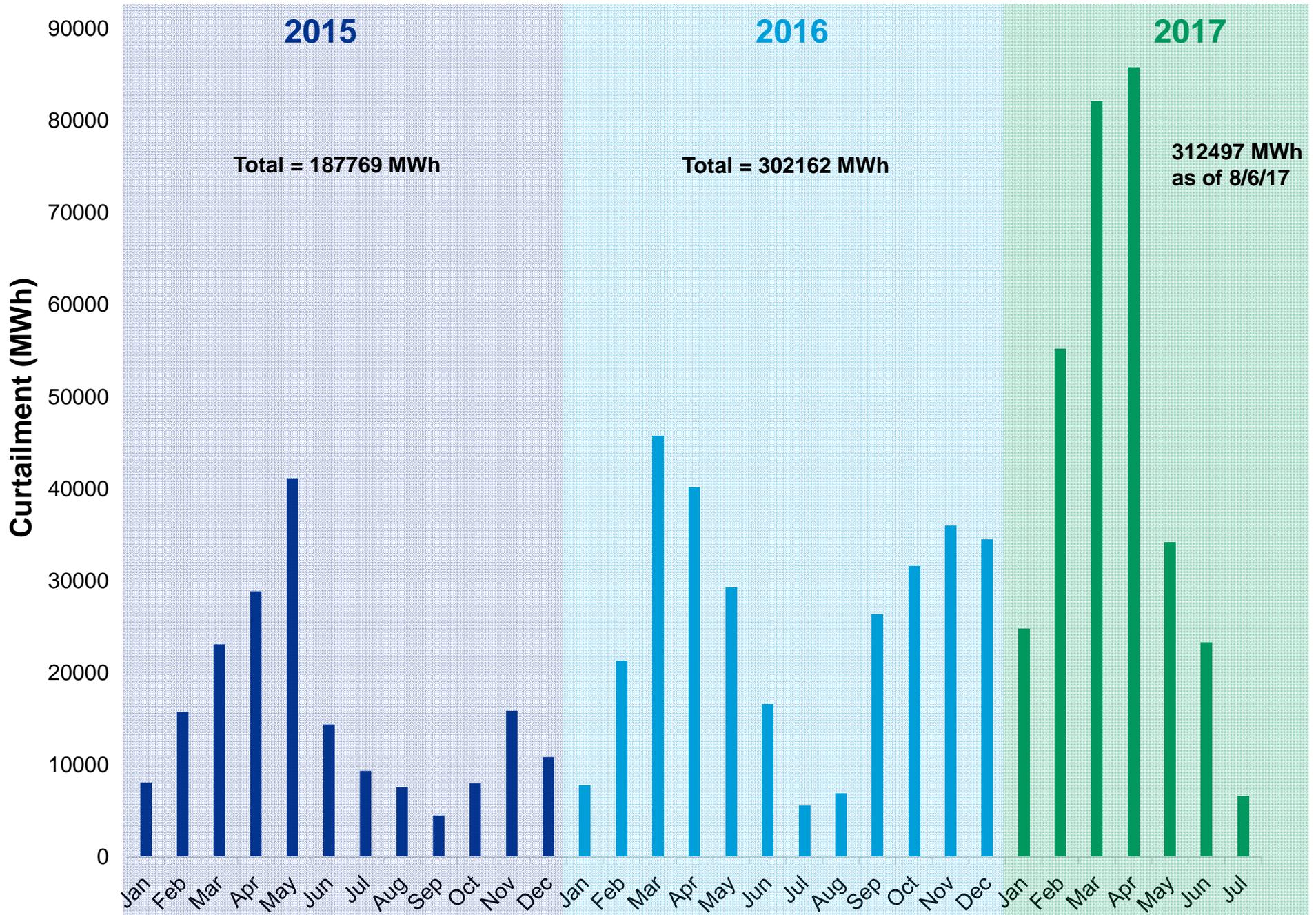
CAISO Proposal: 2021 Monthly Net Load



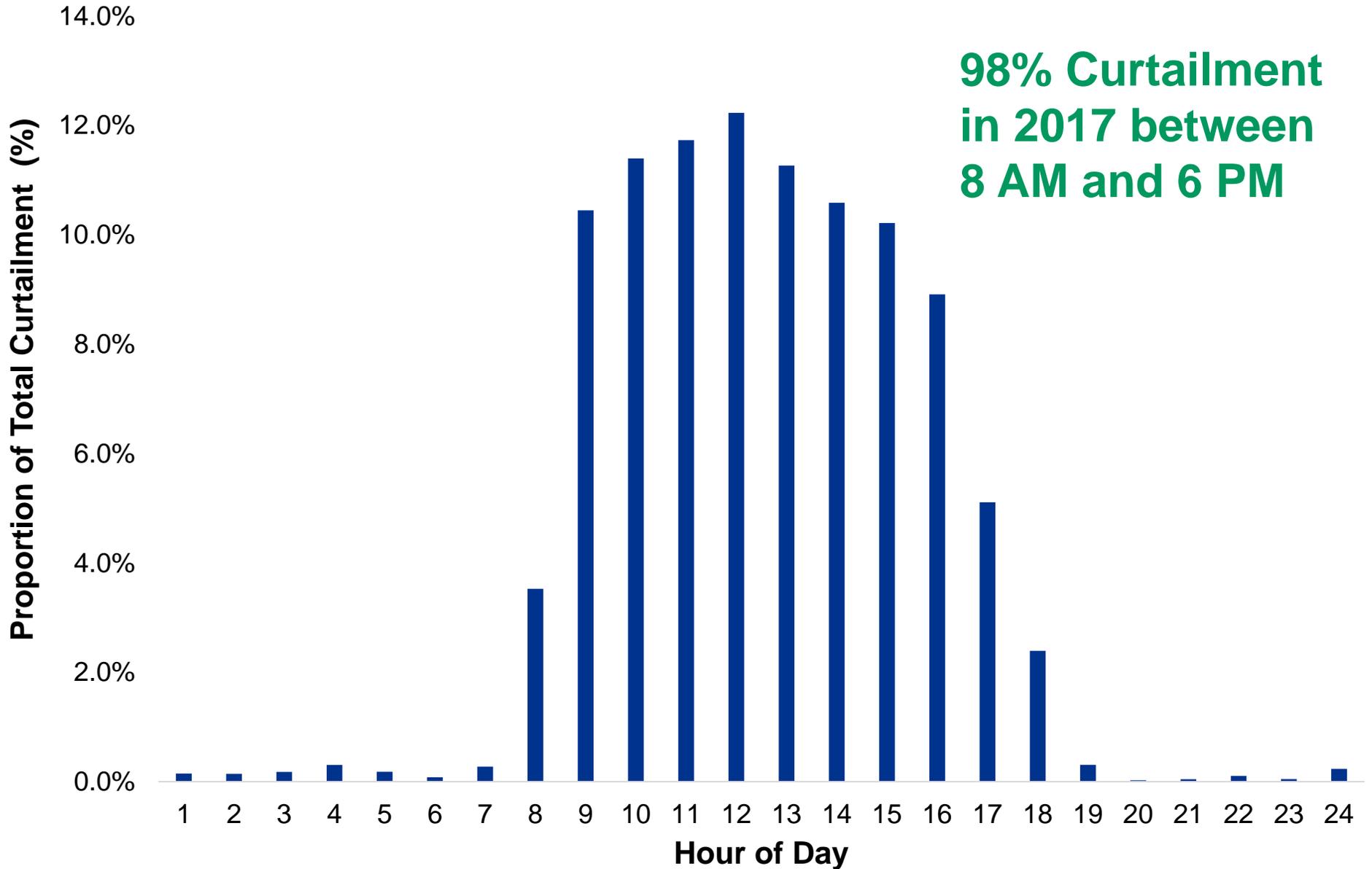
- Off-Peak
- Super Off-Peak
- Peak
- Super Peak



CAISO Curtailment of Wind and Solar by Month 2015 - 2017

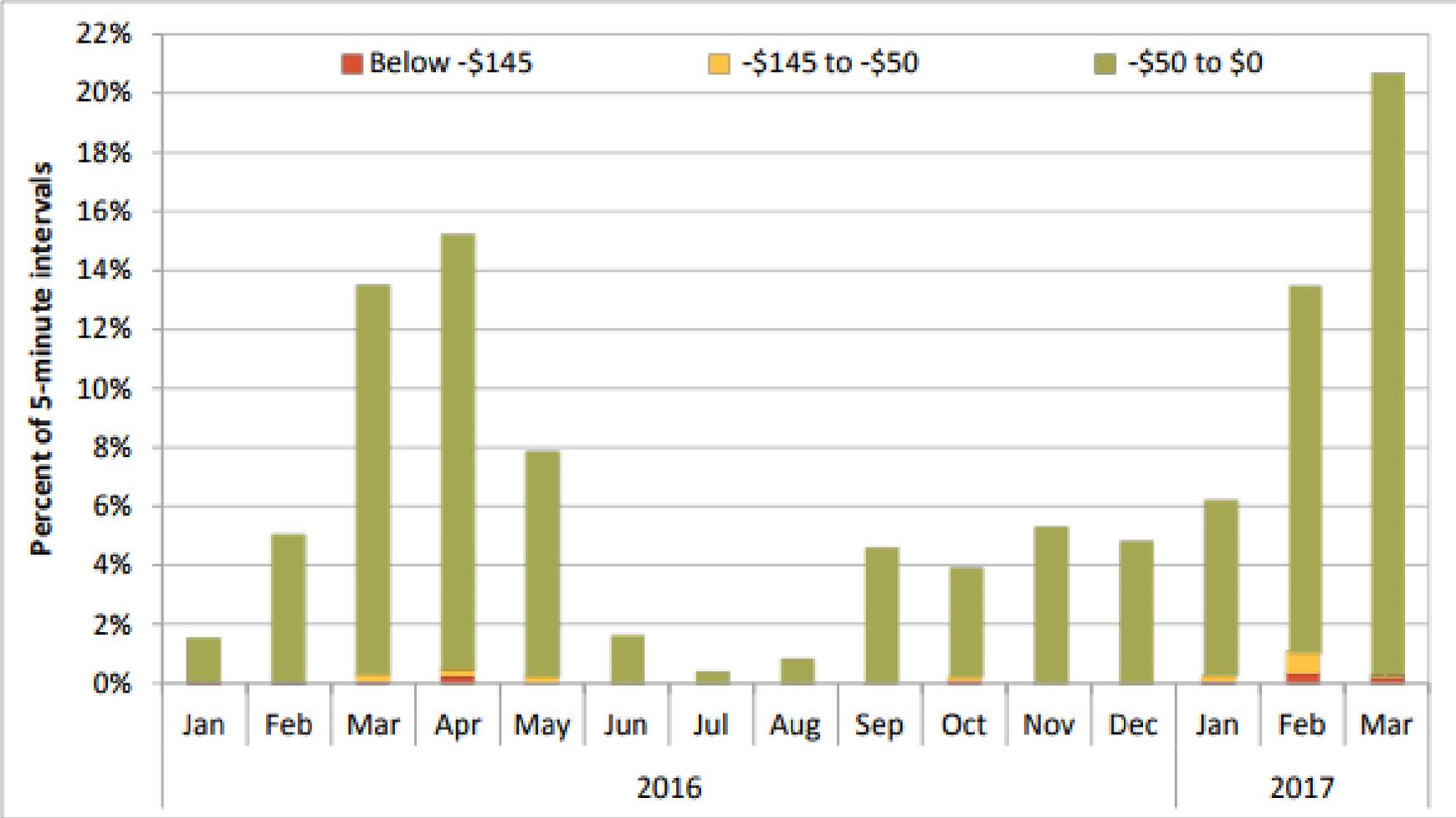


2017 Hourly Curtailment of Solar and Wind Resources



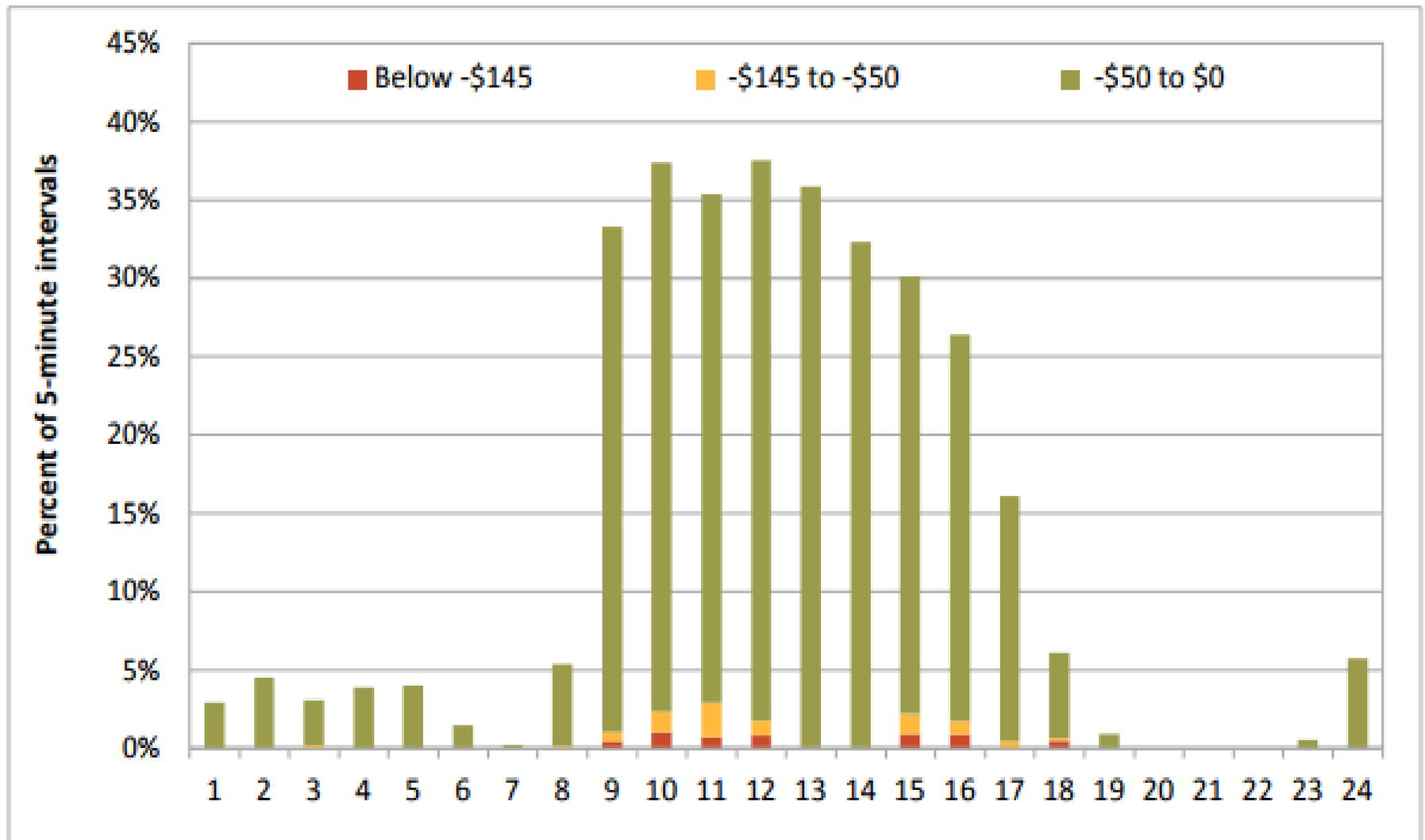
Negative Pricing - (2016 - Q1 2017 Monthly)

Figure 1.5 Frequency of negative 5-minute prices by month

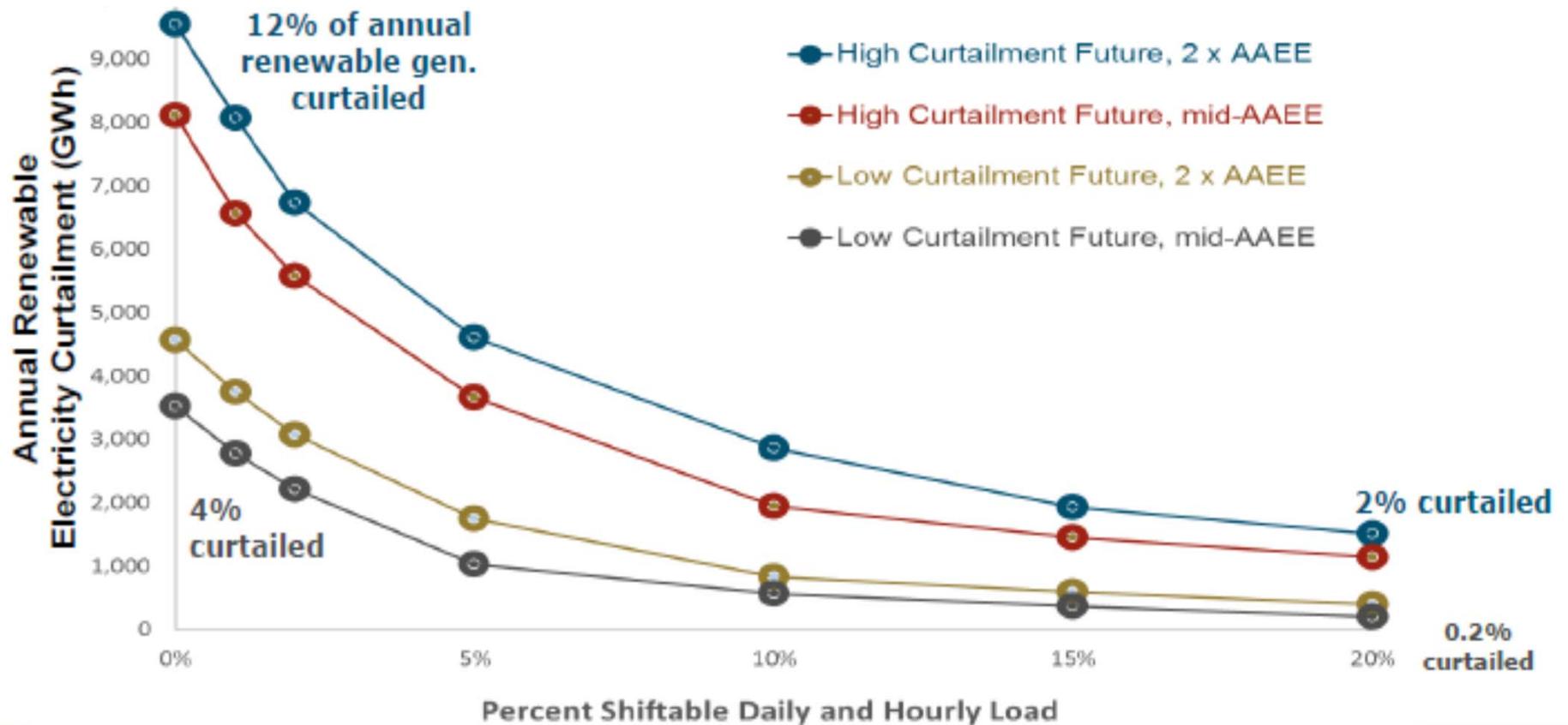


Negative Pricing (Q1 2017 Hourly)

Figure 1.6 Hourly frequency of negative 5-minute prices (January – March)



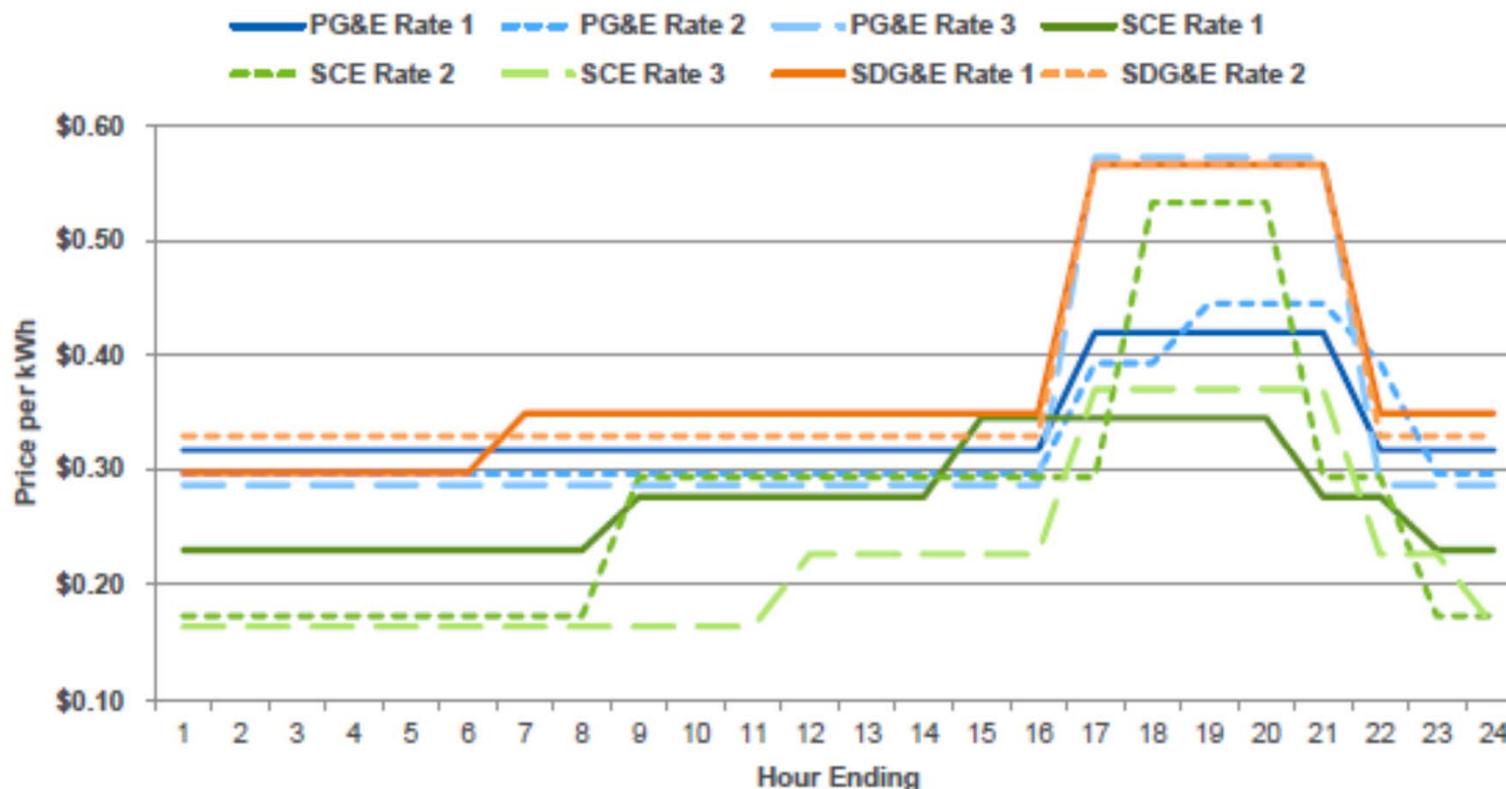
Shifting 20% of demand can reduce curtailments from 12% to 2% of capacity



Planned TOU won't fix curtailment



- While the pilot was not designed to compare results across utilities, such comparisons are likely to be made – when doing so, it is important to compare impacts for a common set of hours – 6 to 8 PM are the only hours that are common across IOUs and rates
- PG&E Rate 3 and SDG&E Rates 1 & 2 all have similar peak periods and prices at approximately \$0.57 per kWh
- SCE's highest and most comparable peak price is for Rate 2 at \$0.53 per kWh

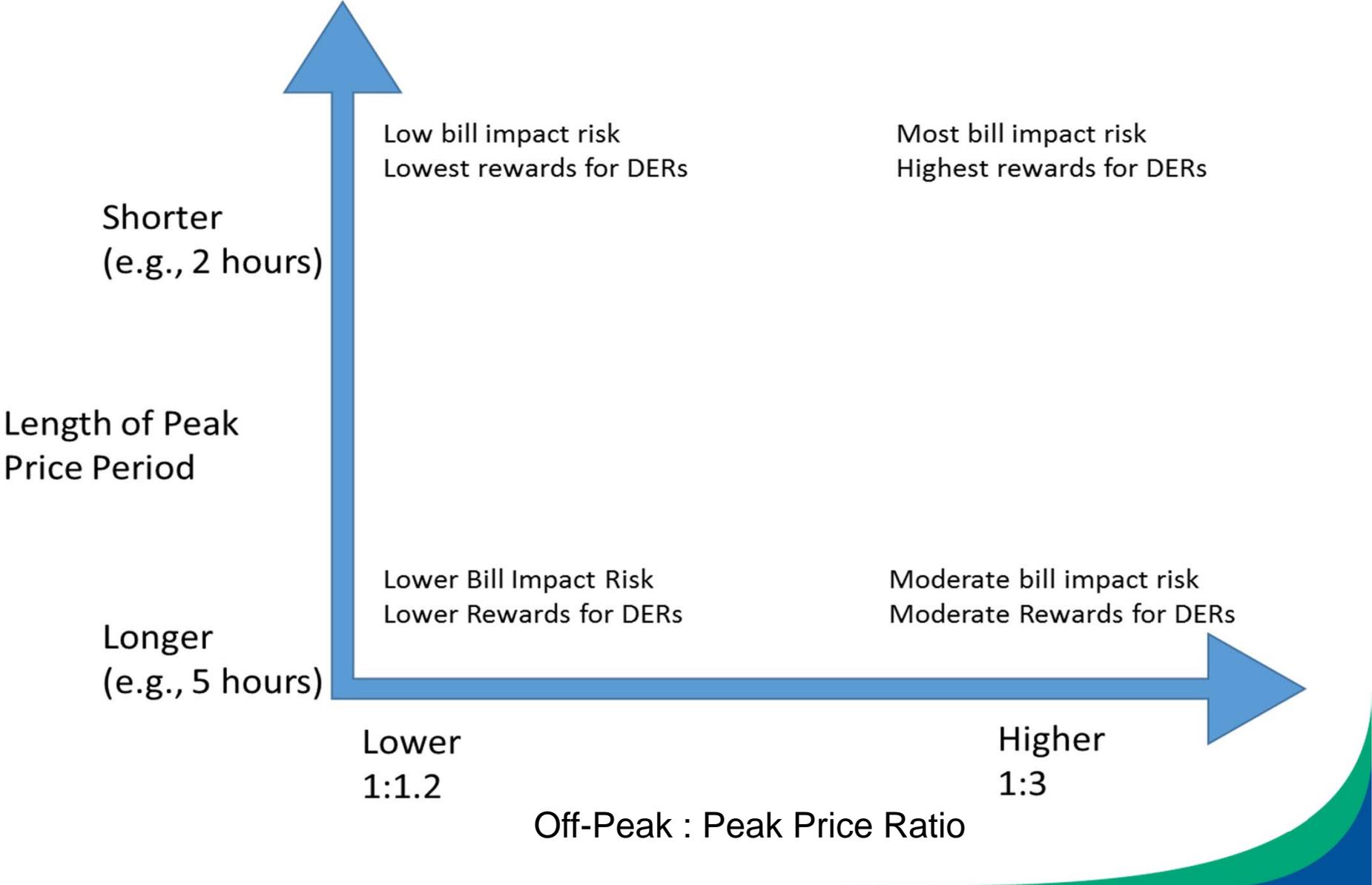


CA TOU pilots will be missed opportunities, if we are lucky

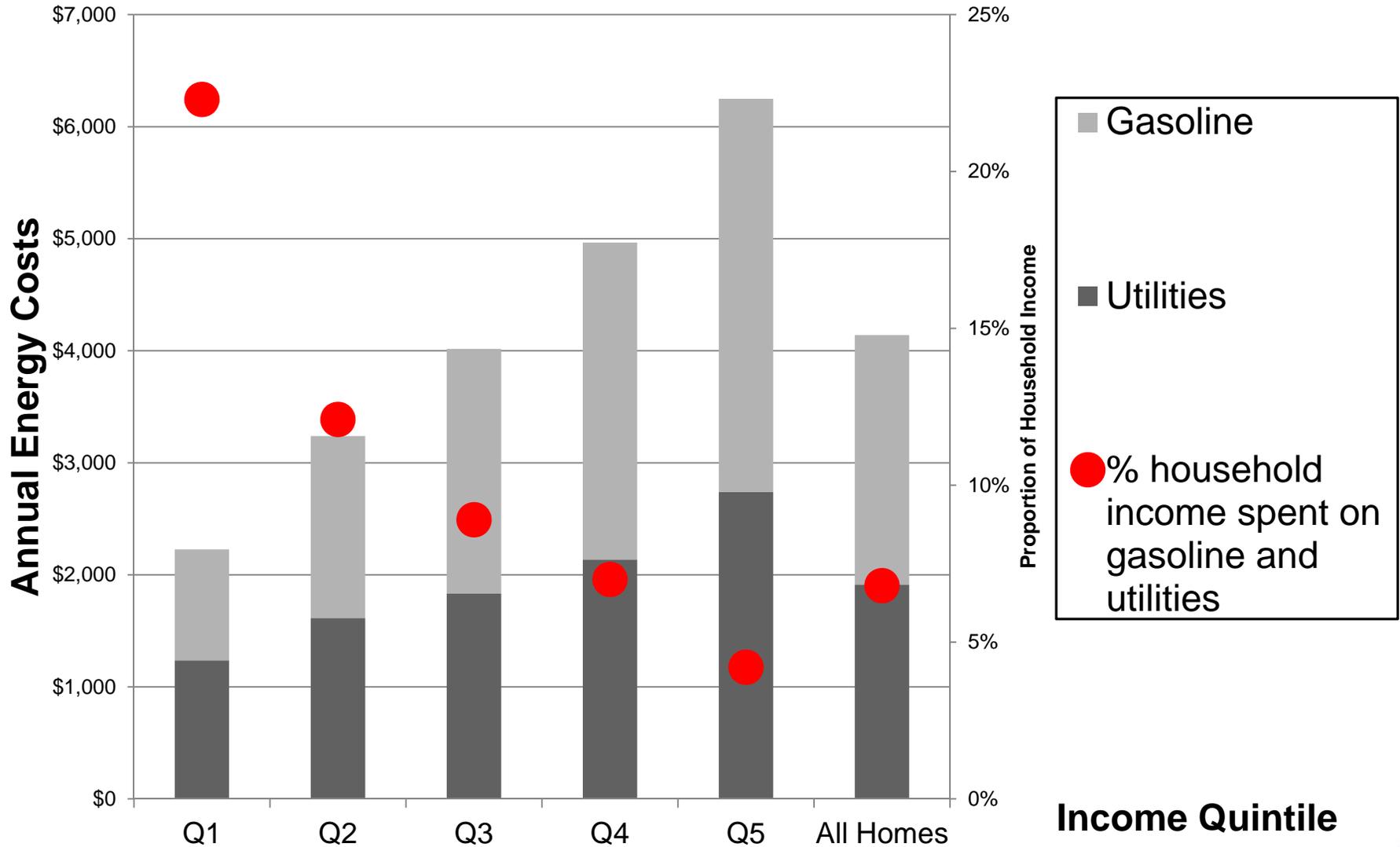
- Incomplete pilot objectives
- Poor experimental design
- Insufficient customer segmentation
- Preoccupied w ME&O
- No program coordination



Risk vs Reward with TOU Rates

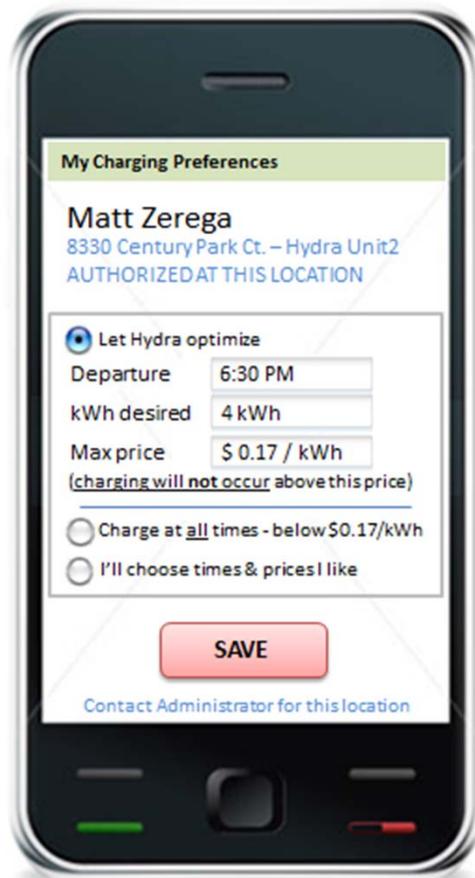


Do not deny poor homes TOU: it provides least-cost energy each day

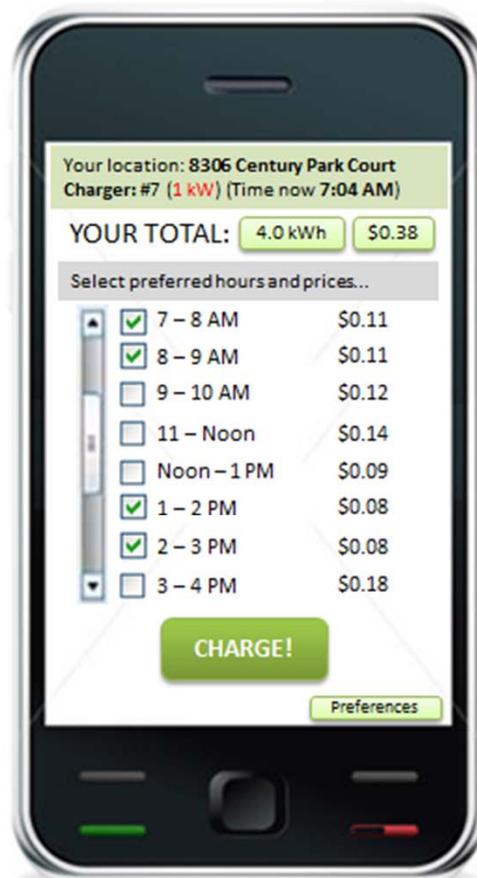


Source: Congressional Budget Office, Memo to Senator Bingaman, June 17, 2008, **Options for Offsetting the Economic Impact on Low- and Moderate-Income Households of a Cap-and-Trade Program for Carbon Dioxide Emissions**. Table 1, Page 3.
Data from Bureau of Labor Statistics, Consumer Expenditure Survey, 2006, at www.bls.gov/cex/2006/Standard/quintile.pdf

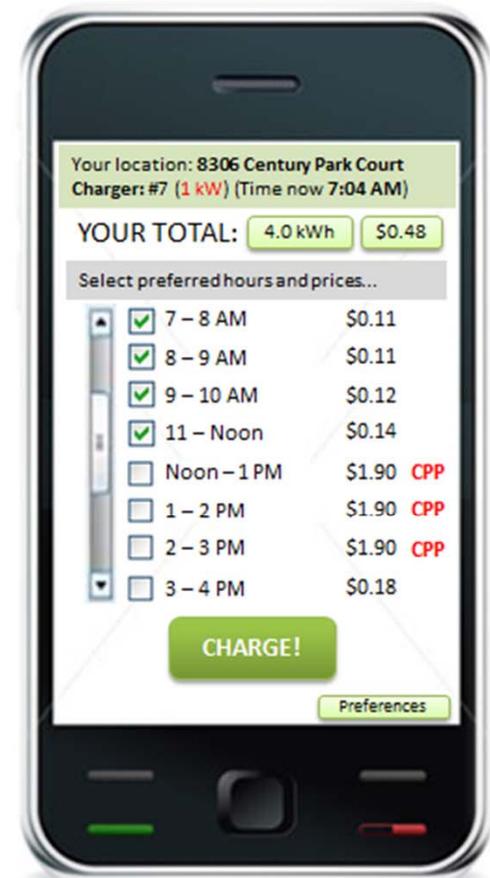
EV Pricing App by SDG&E makes it easy to do V1G...what about V2G?



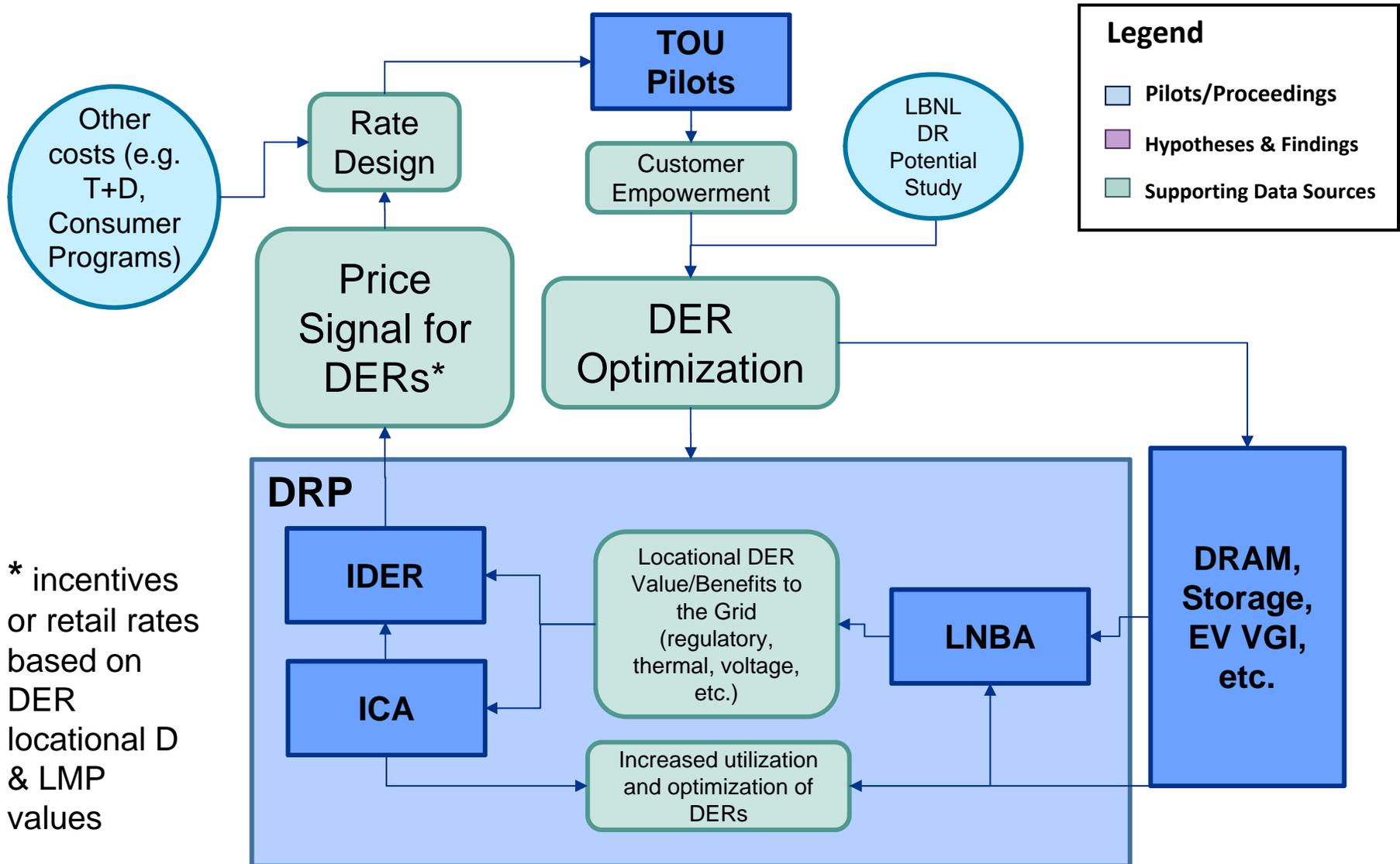
Basic settings –
“set & forget”



Advanced settings –
choose hourly prices



Synchronize IOU Pilots & Programs



* incentives or retail rates based on DER locational D & LMP values



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Finding the ways that work