



Prepping for the EV Revolution



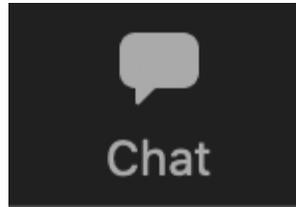
PECAN STREET

Please Stay in Touch

pecanstreet.org/events

media@pecanstreet.org

pecanstreet.org



Question? Use the chat function.



Scott Hinson, CTO

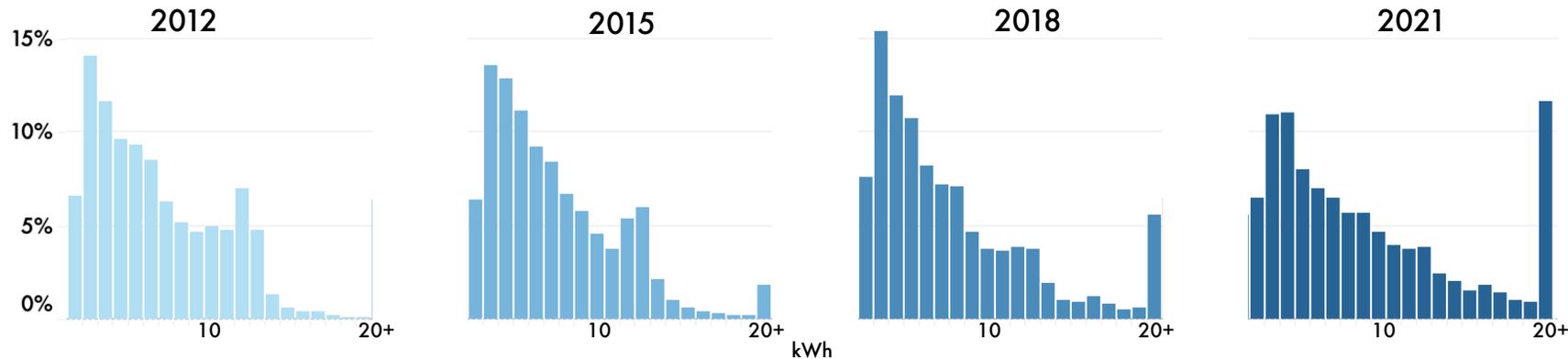
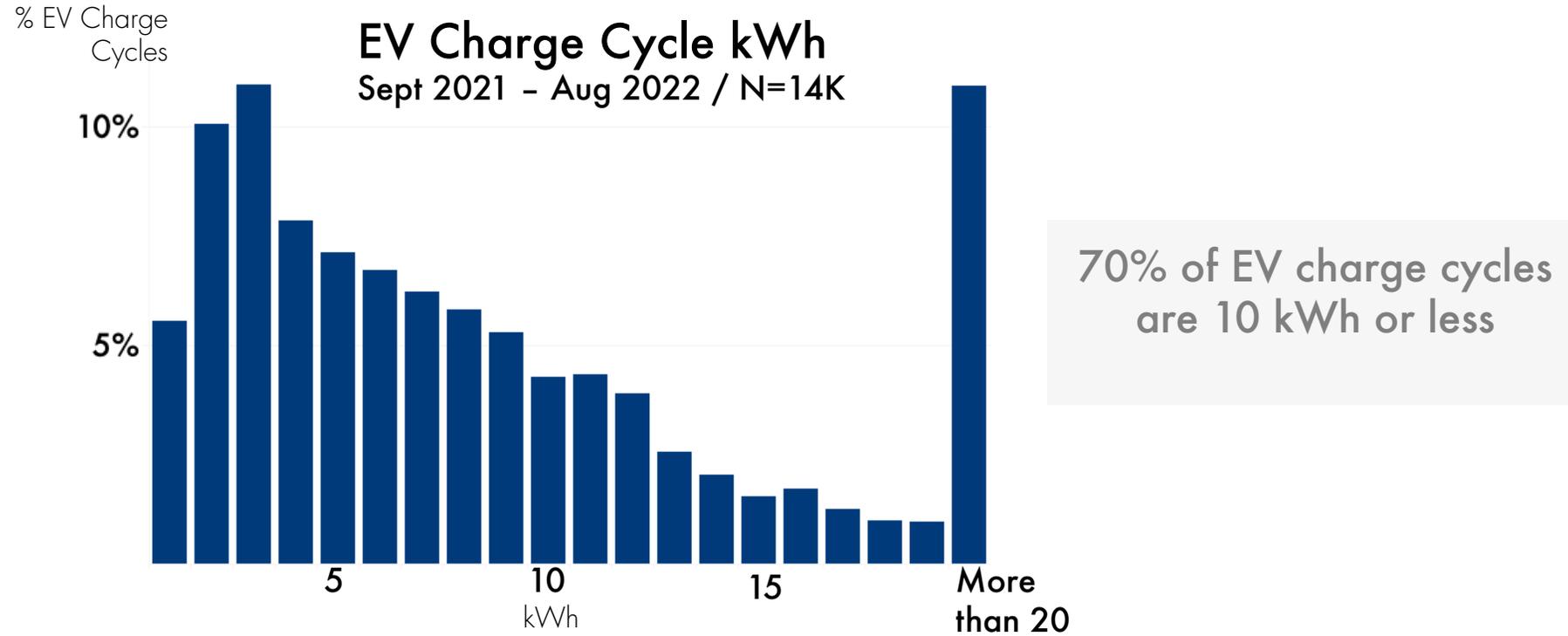


Cavan Merski, Data Analyst



Colin Rowan, Moderator

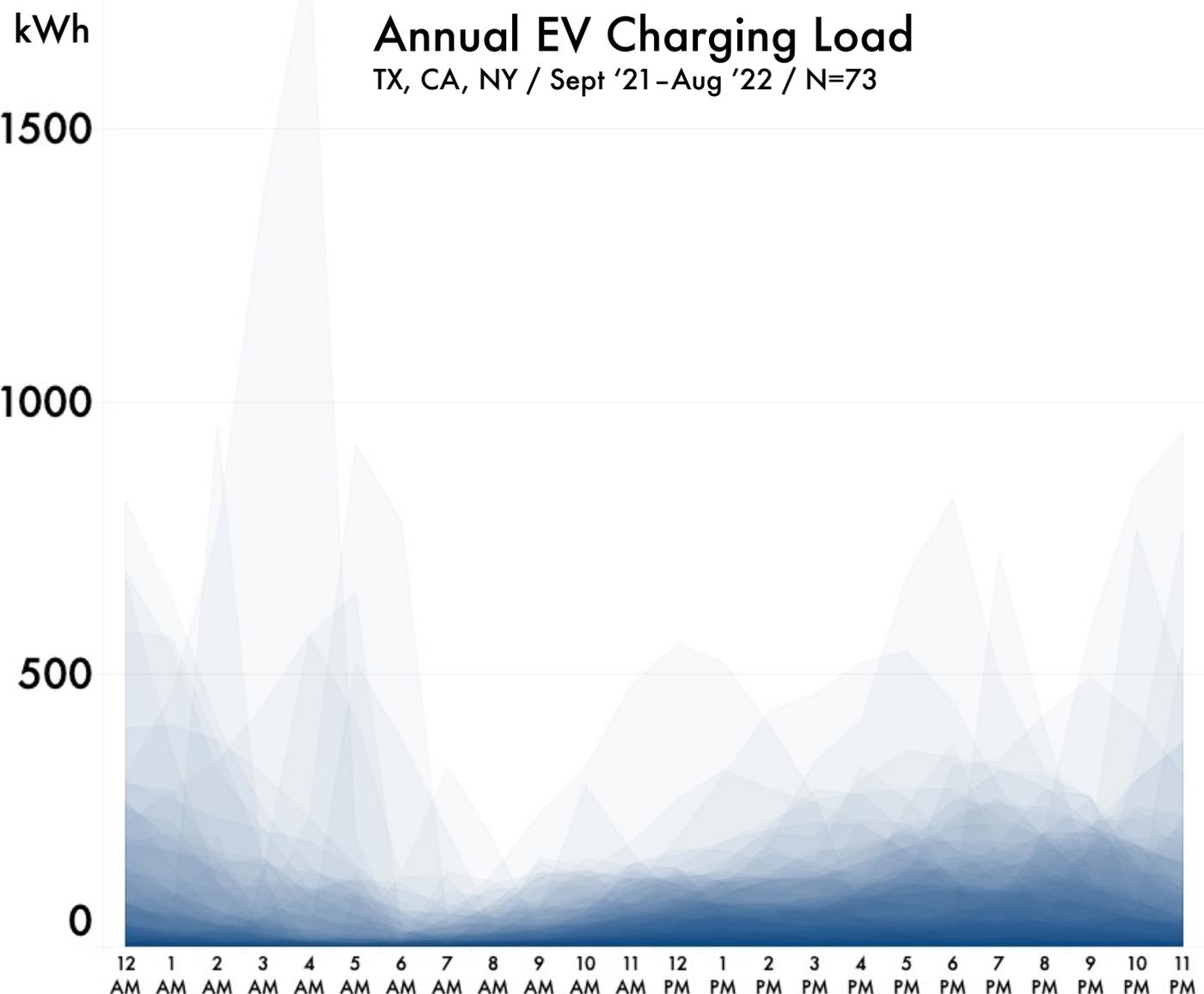
EV Drivers Sip at Chargers



Flexibility In Action

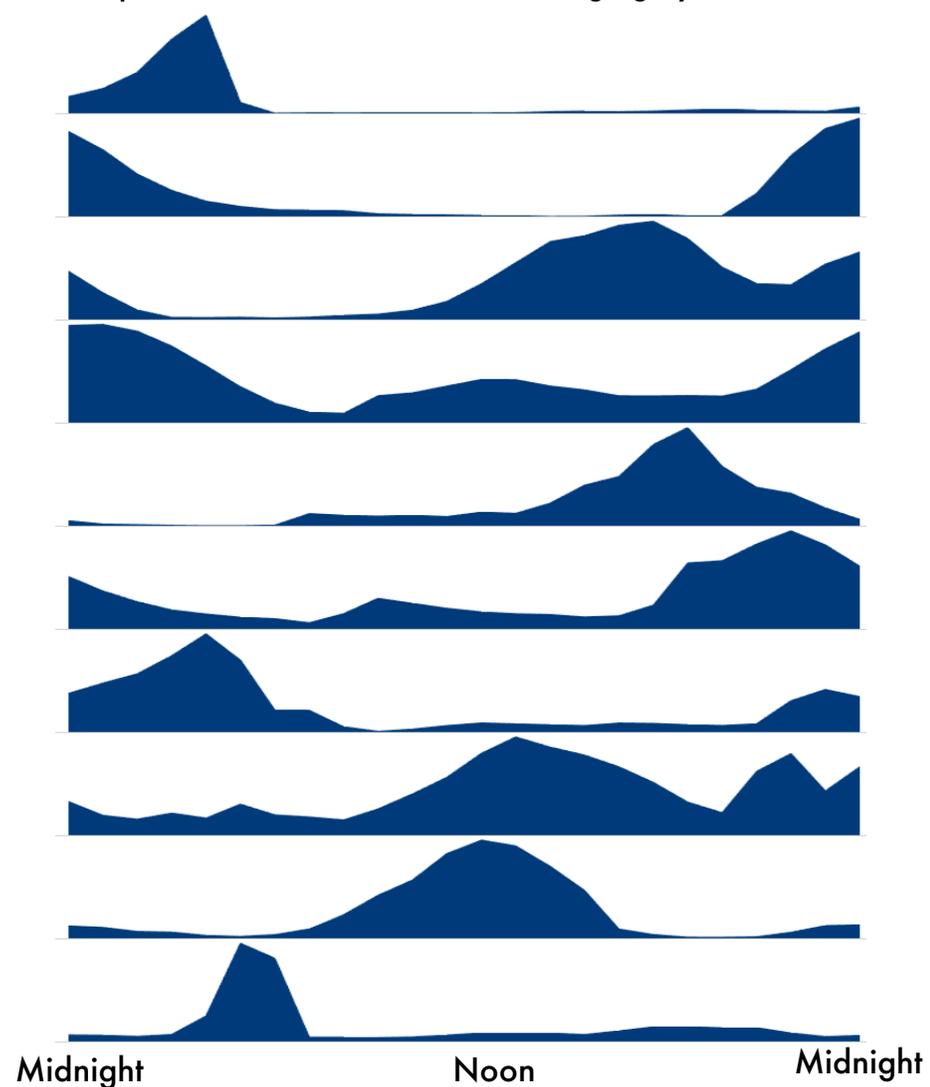
Annual EV Charging Load

TX, CA, NY / Sept '21 - Aug '22 / N=73



Annual EV Charge Load By Hour

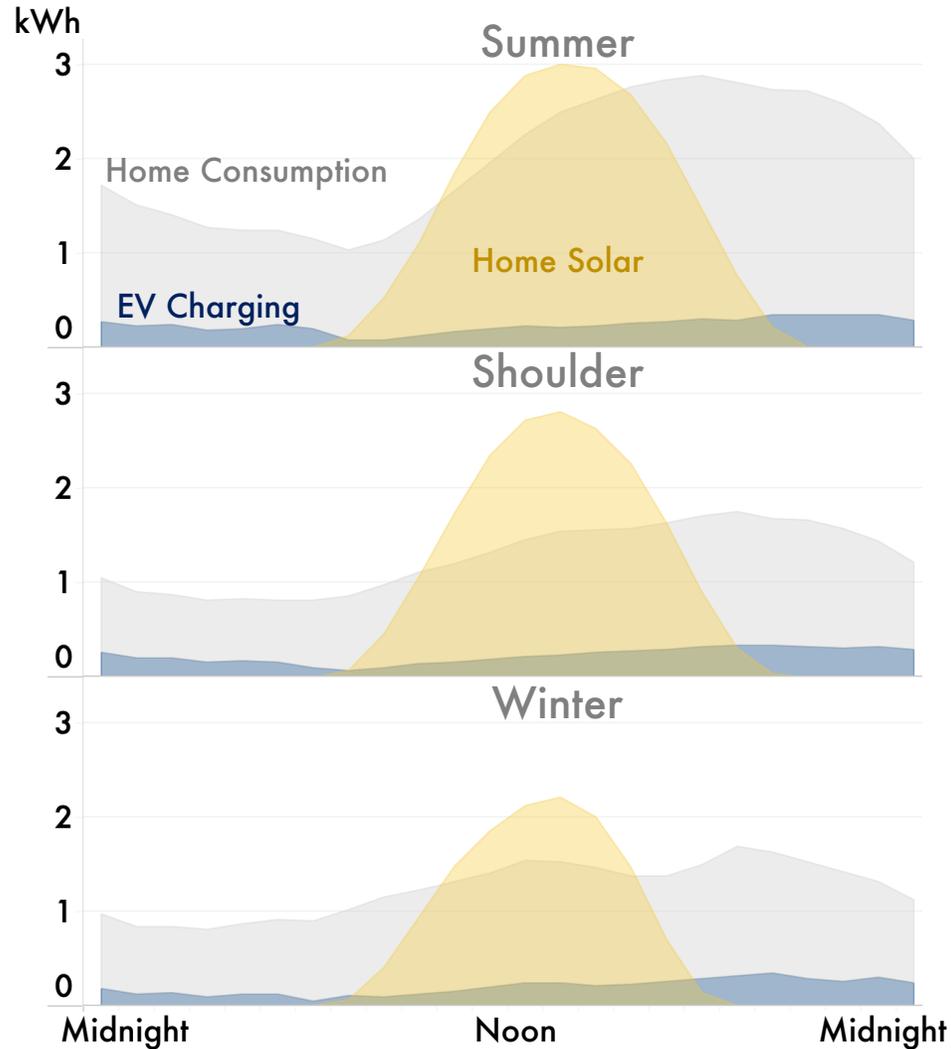
Top Ten Homes with Most EV Charging by kWh



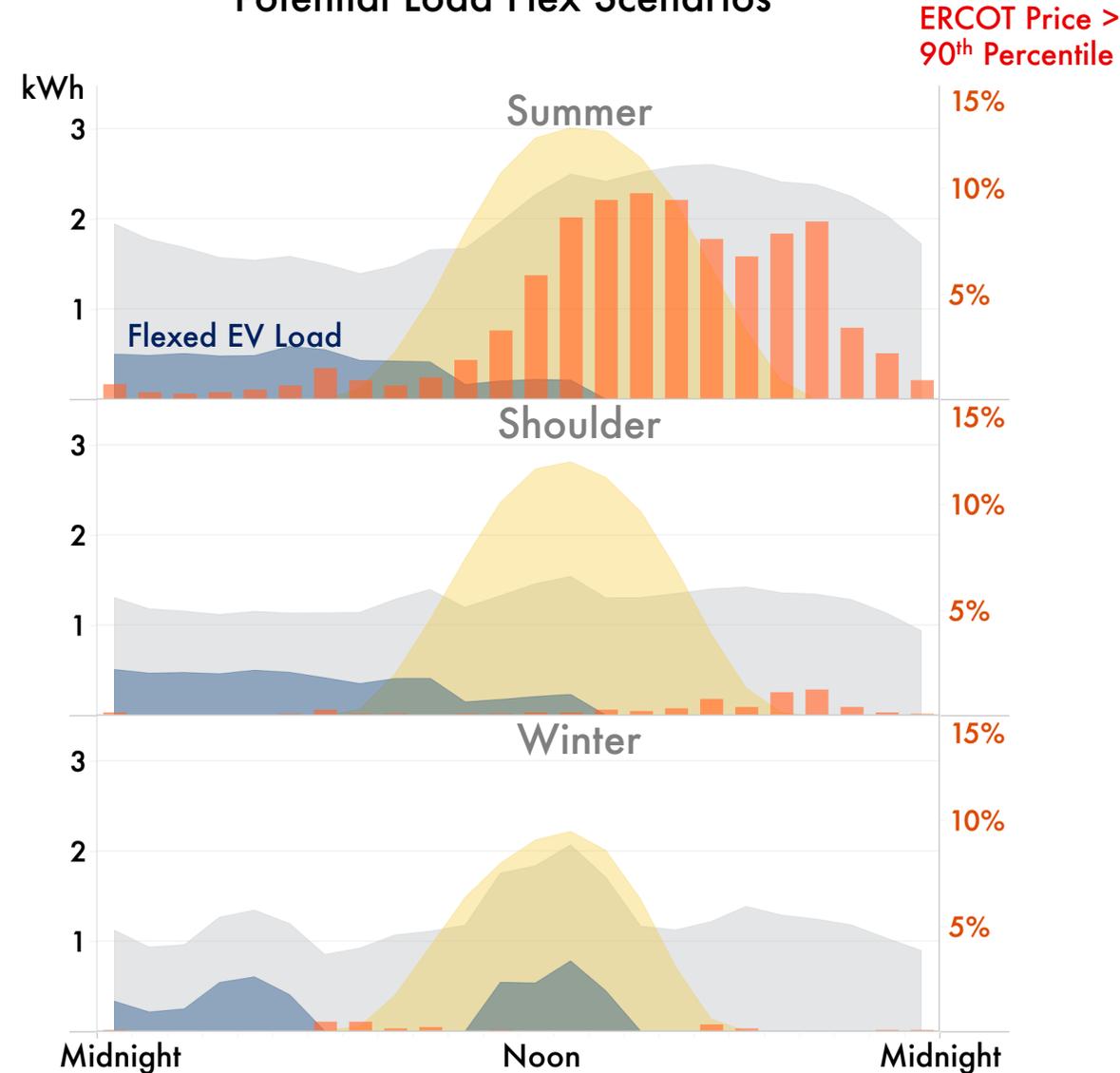
Residential EV Charge Load in Perspective

EV Charge vs. Home Consumption vs. Solar Production N=43 Austin, TX / % Hours ERCOT Real Time Price > 90th Percentile

2021-22 Avg Hourly Load By Season



Potential Load Flex Scenarios

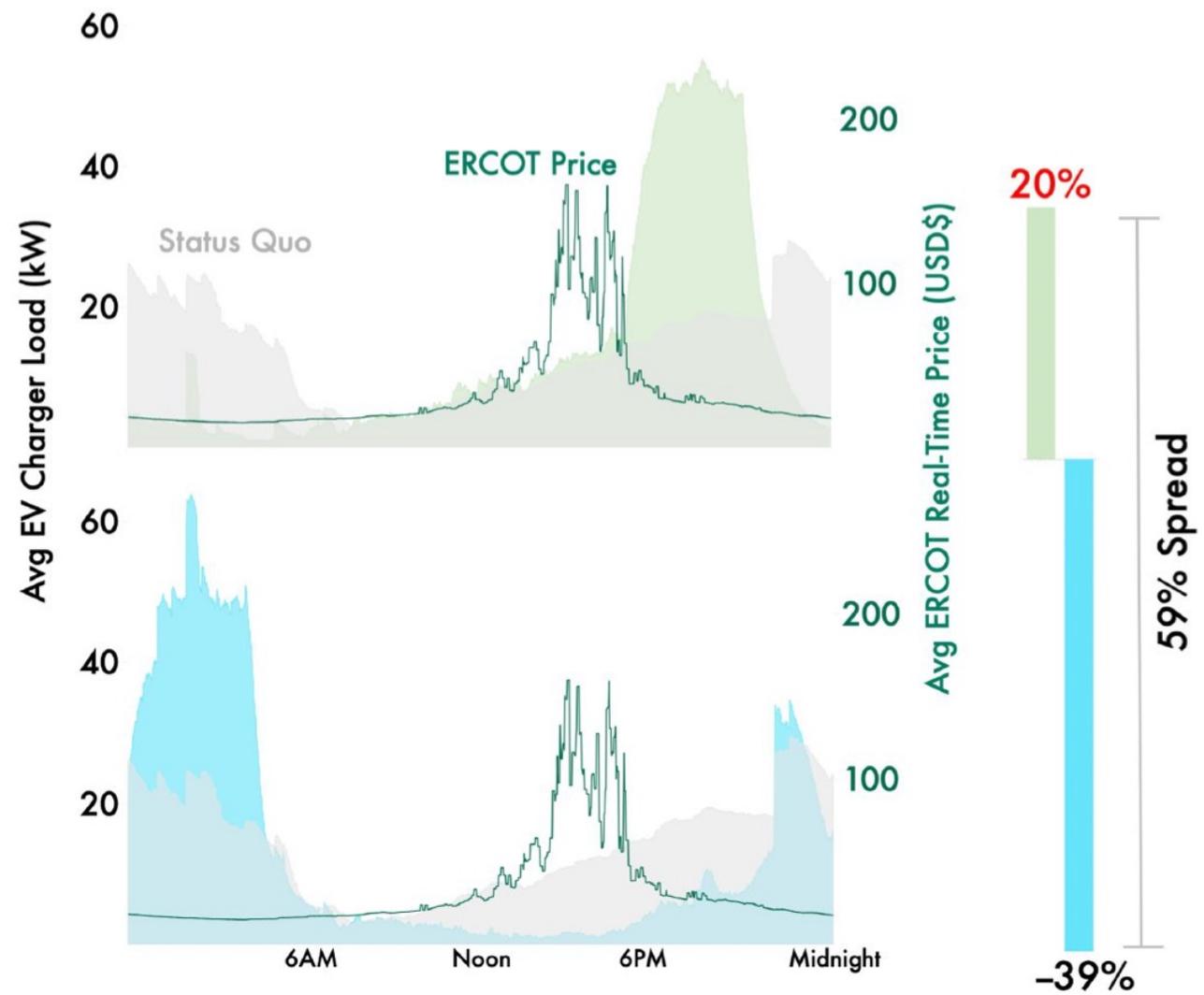


Managed Charging

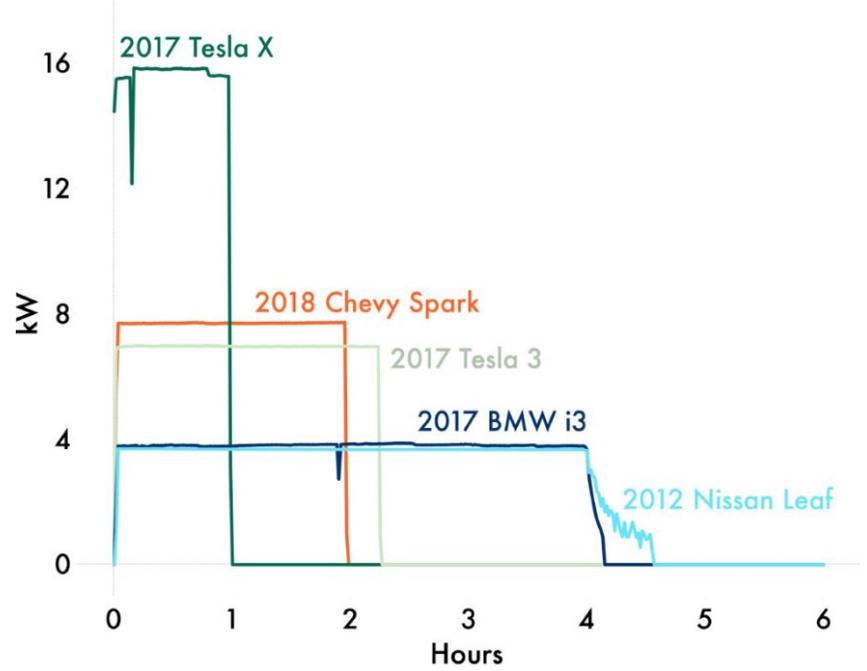
Managed Charging Saves Money

Summer Average EV Charging Load vs Status

35% Charging Cycles Shifted With Upgraded Charging Power

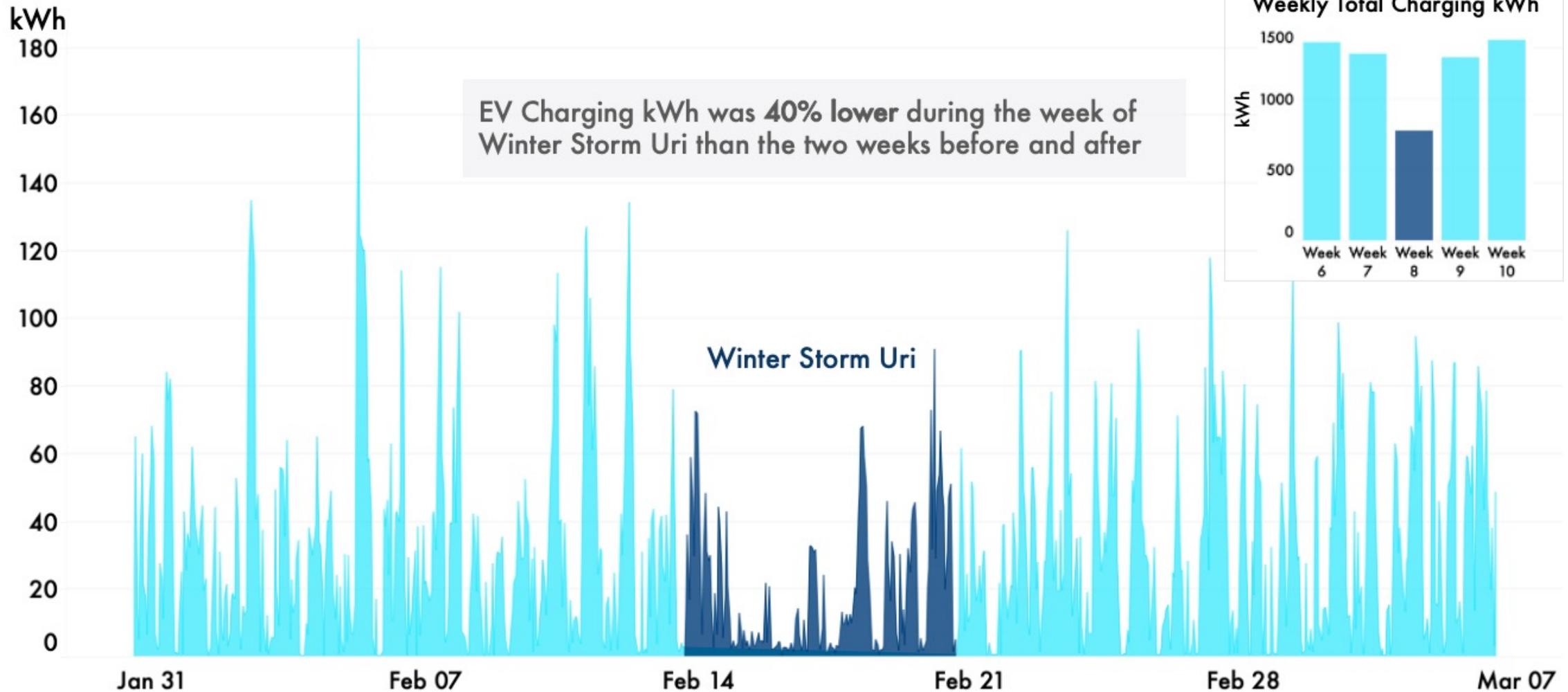


EV Charge Profiles at Different Rates



EV Charging in Crisis Mode

45 Homes With EV Chargers and Uninterrupted Power Jan 31 – March 7



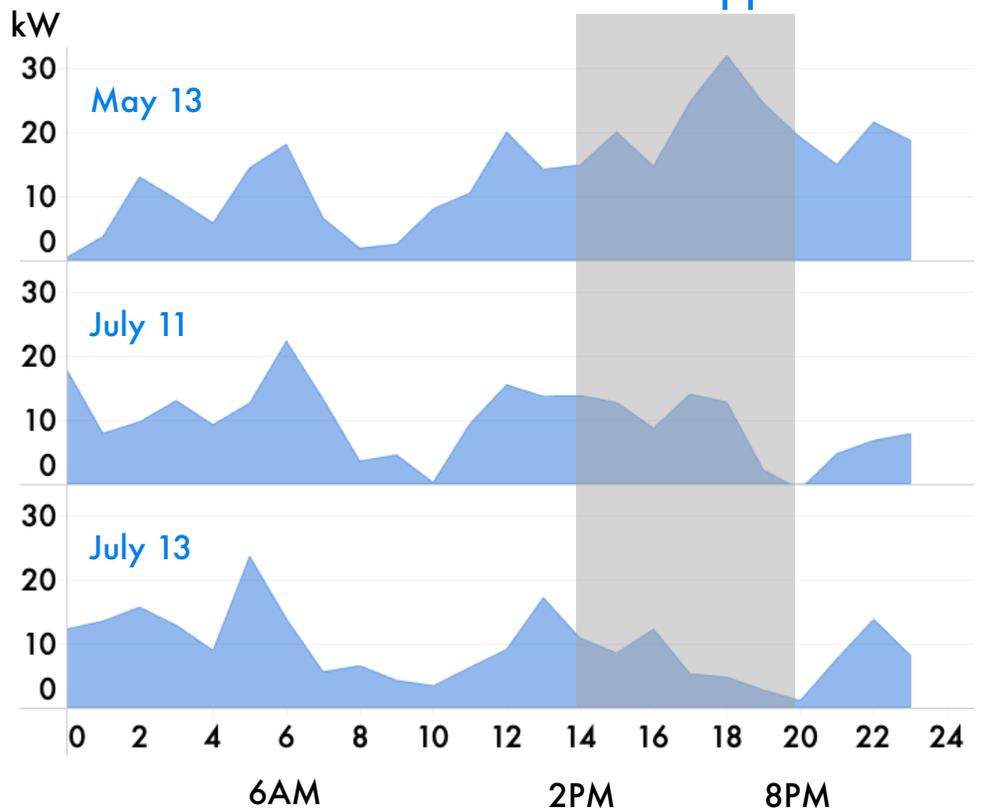
EV Charging in "Pre-Crisis" Mode

2022 Summer Average Hourly EV Load

Texas Homes / N=55

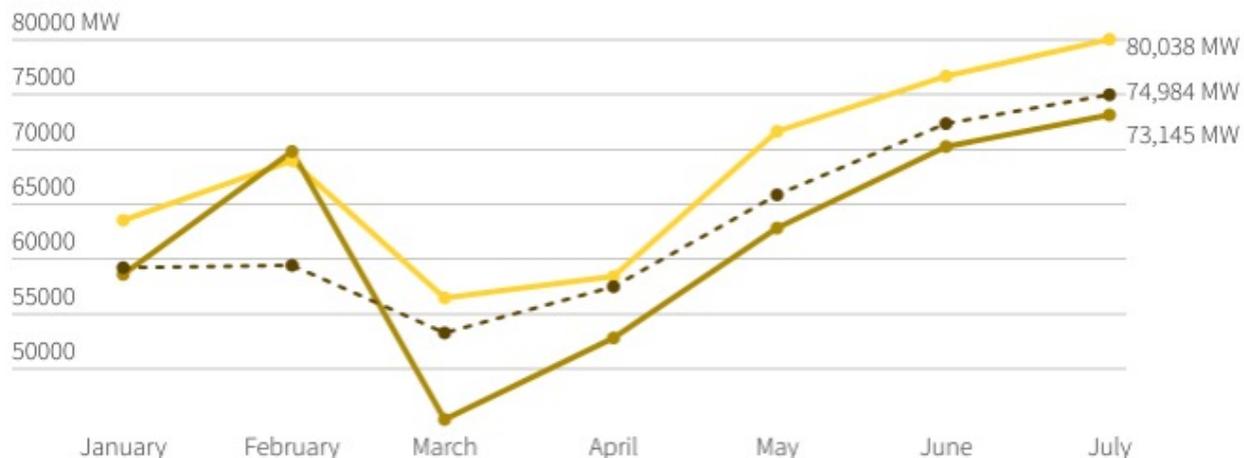


Hourly EV Load During ERCOT 2022 Summer Conservation Appeals



Texas' summer power demand has far exceeded ERCOT's projections

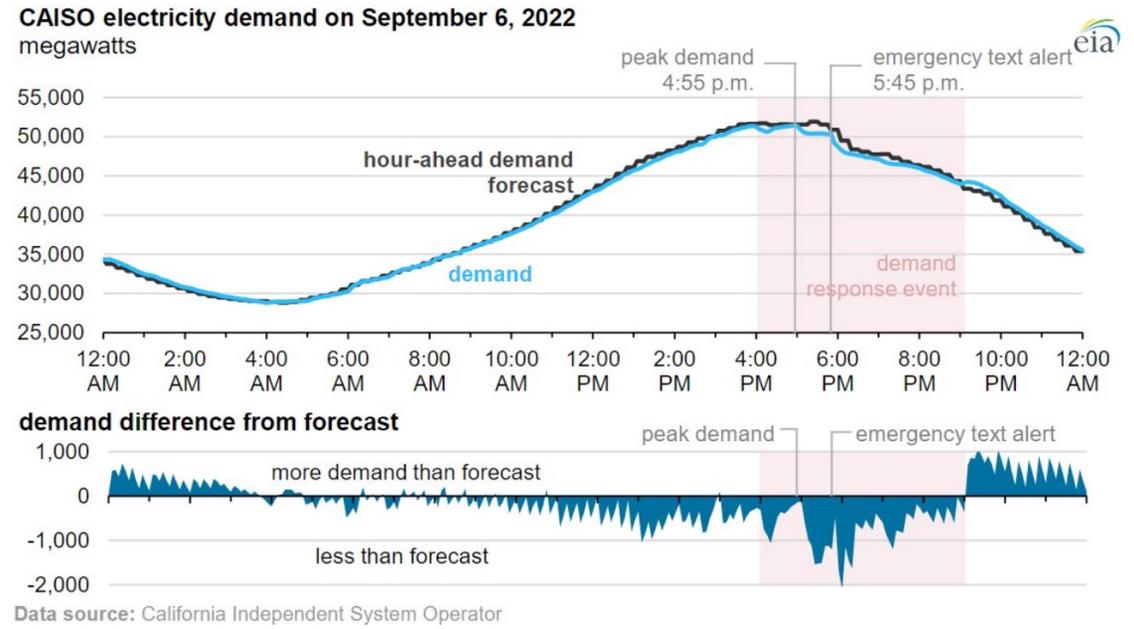
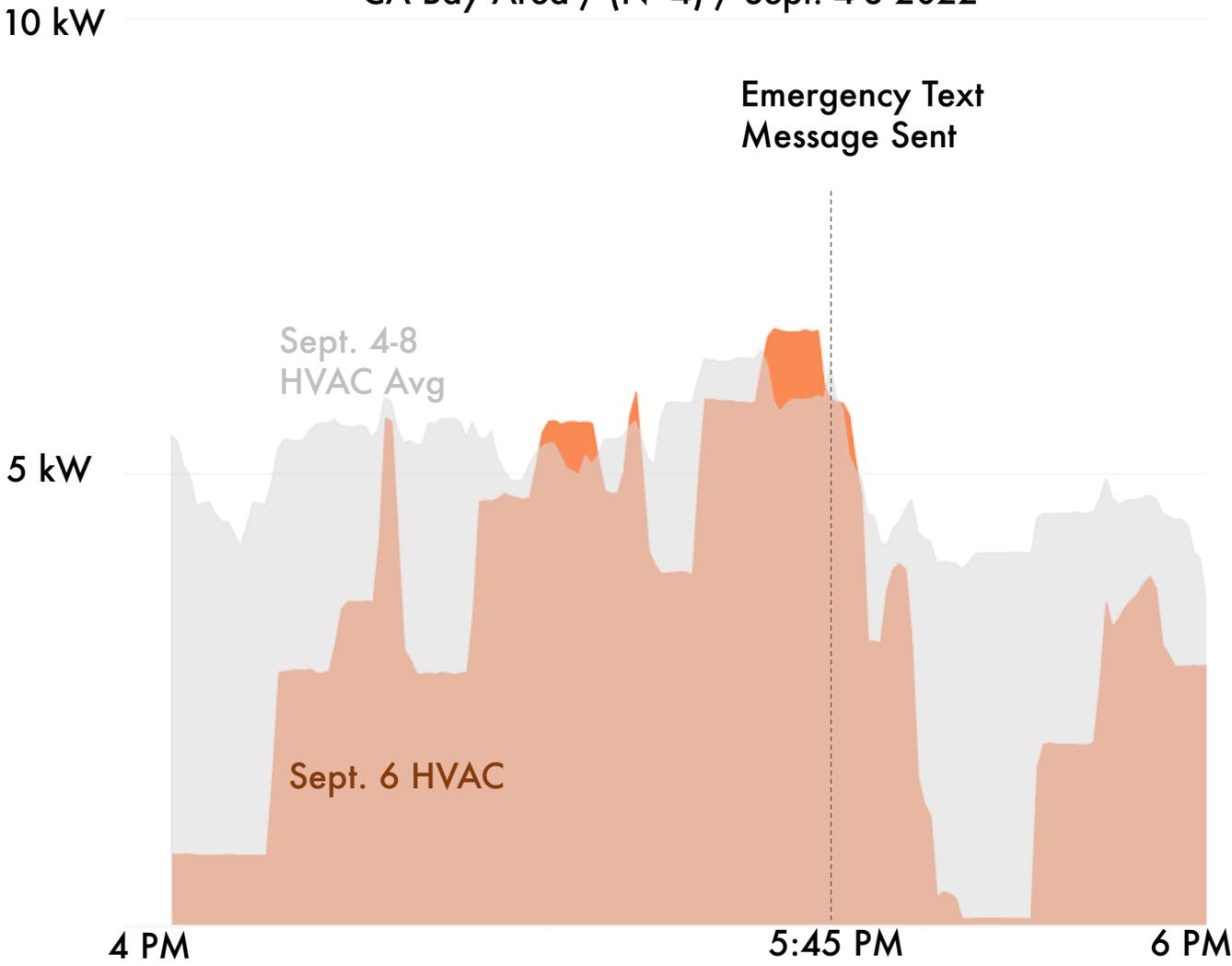
— Actual 2022 Demand - - Forecasted 2022 Demand — Actual 2021 Demand



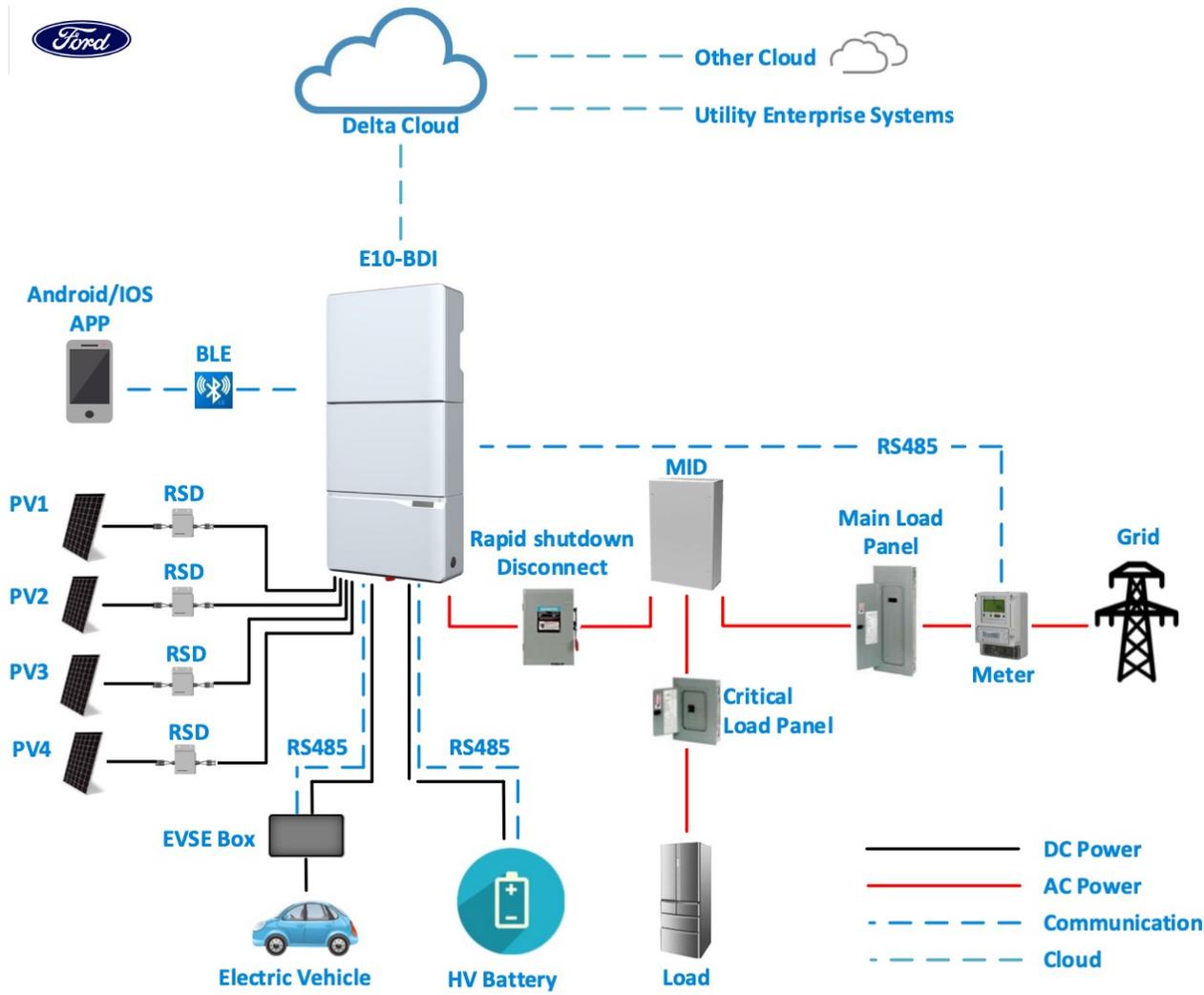
Source: Electric Reliability Council of Texas (ERCOT) / Swati Verma
Reuters Graphics

CAISO Heatwave Sept 2022

One-Minute HVAC Load CA Bay Area / (N=4) / Sept. 4-8 2022



V2H Home Backup Integration Equipment Example

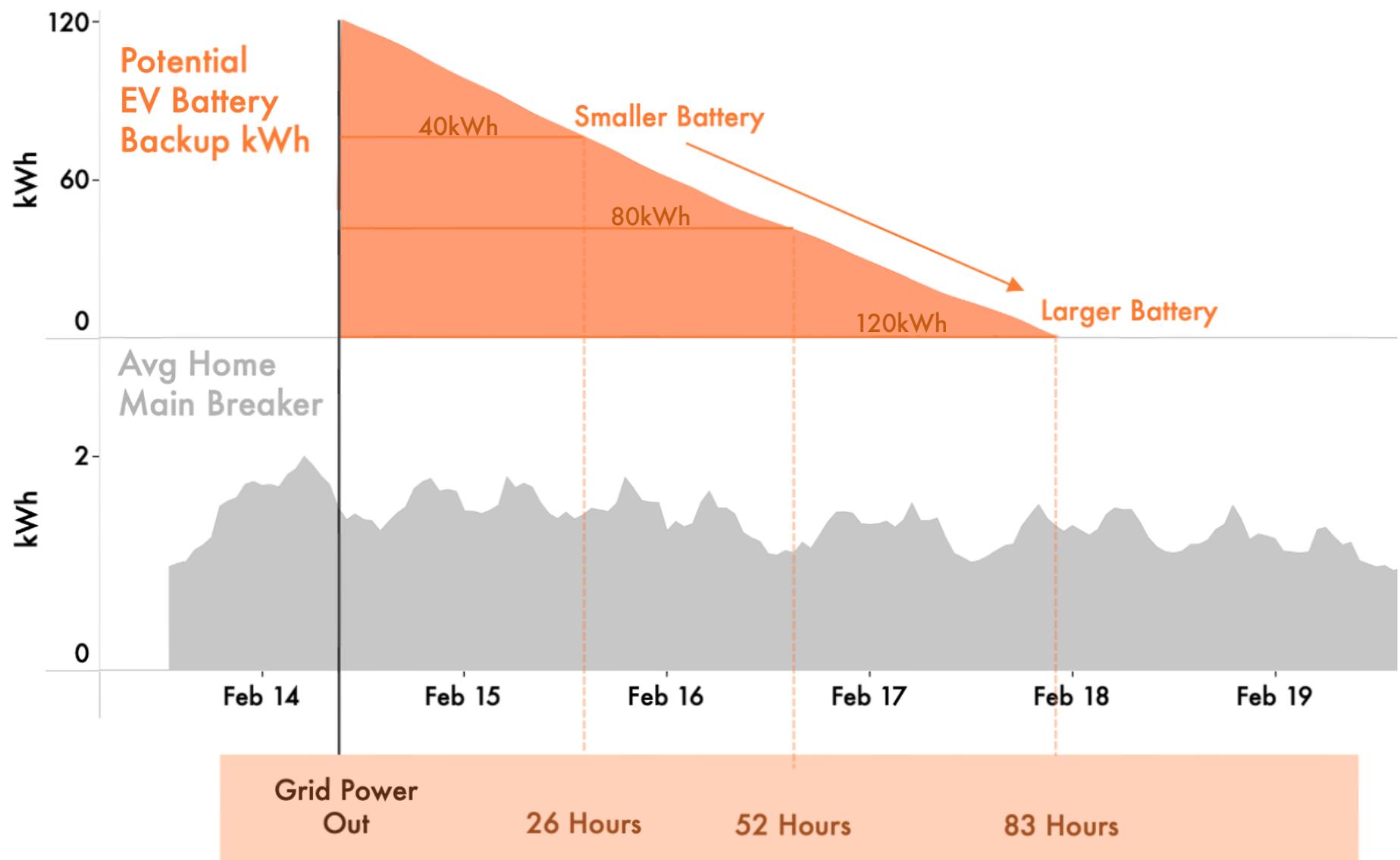


System Configuration

Source: Delta Electronics Residential Energy Storage Inverter with Integrated DC Charger for North America Spec Sheet

Potential EV Battery Support

140 Texas Homes With Uninterrupted Power Following Winter Storm Uri Grid Outage



Balancing Load

Residential Loads Are Changing

One Minute Data for Austin Home in February High 36 °F / Low 30 °F

kW

12

10

8

6

4

2

0

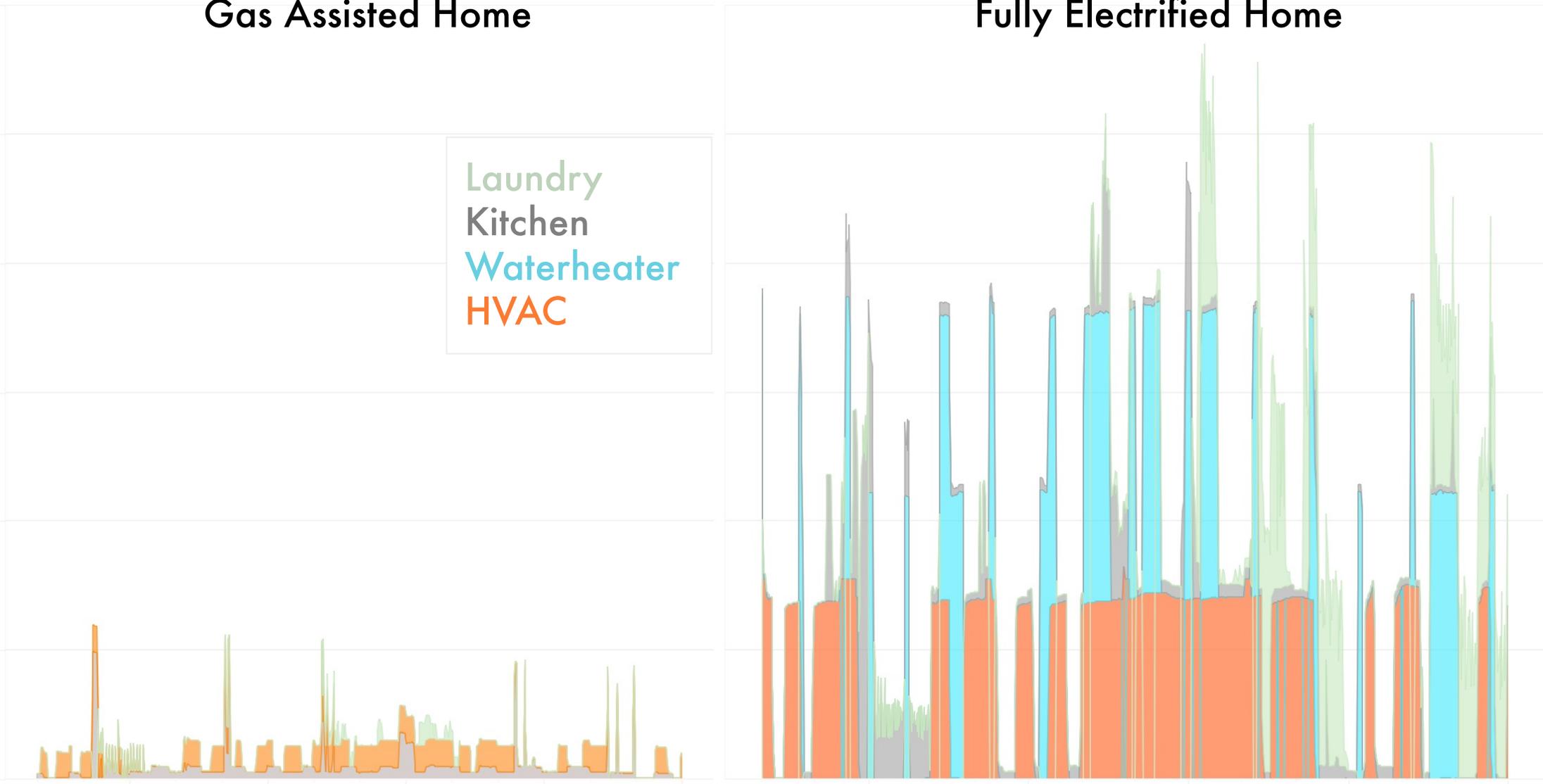
Gas Assisted Home

Fully Electrified Home

Laundry
Kitchen
Waterheater
HVAC

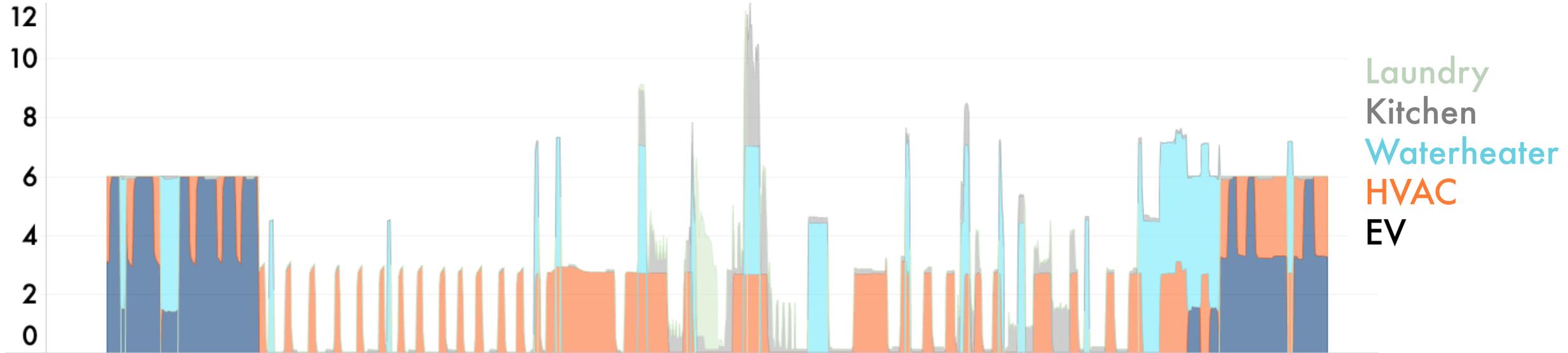
10 AM 1 PM 4 PM 7 PM 10 PM

10 AM 1 PM 4 PM 7 PM 10 PM

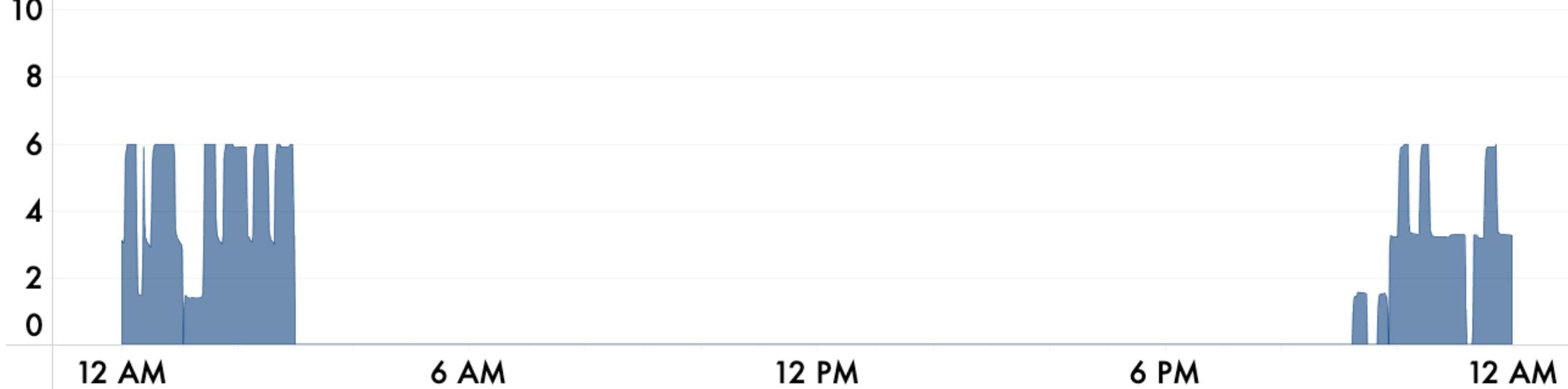


Potential for EV Charging to Balance Home Load

kW All Electric Home With Modeled Flexible EV Charging Load



Modeled Flexible EV Charge Load (22kWh / Max 6kW)



V2X Infrastructure

- Standardization / Open Source / Common Framework
- FERC 2222
- Texas Pilot
- Workforce development



Questions

Please Stay in Touch

pecanstreet.org/events

media@pecanstreet.org

pecanstreet.org

Thank You