Prepping for the EV Revolution – A Deeper Dive

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Charging Behavior

Flexibility In Action

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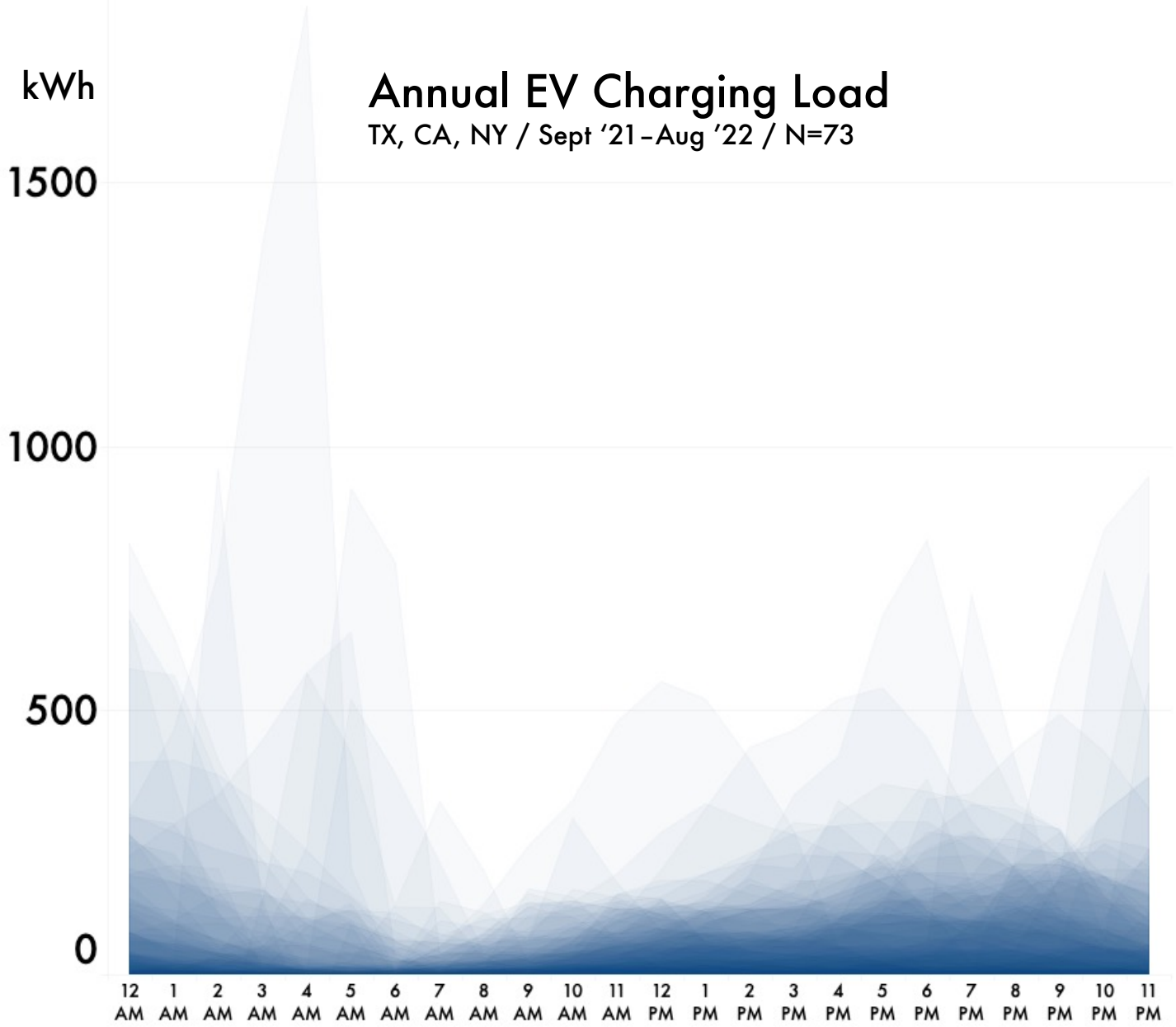
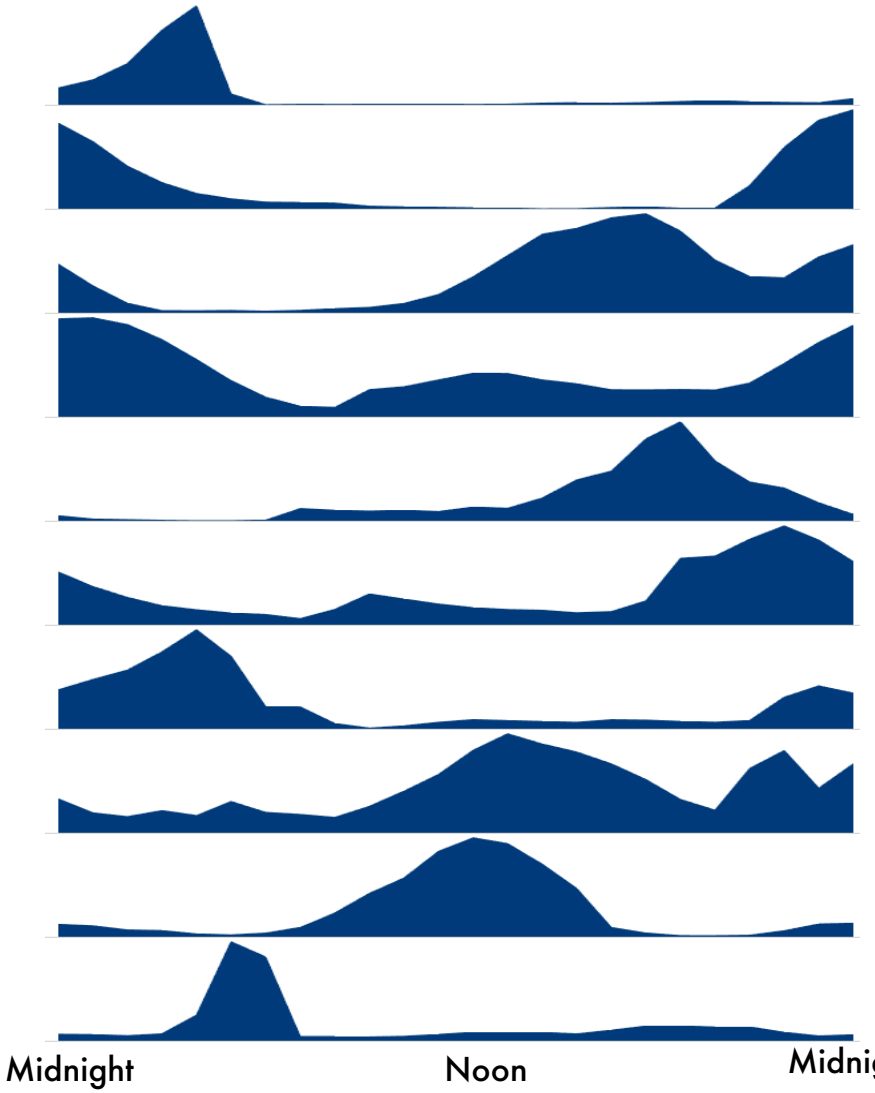
Annual EV Charging Load

TX, CA, NY / Sept '21–Aug '22 / N=73



Annual EV Charge Load By Hour

Top Ten Homes with Most EV Charging by kWh



Average Hourly EV Charge Trend

22 Homes From 2018 - 2022

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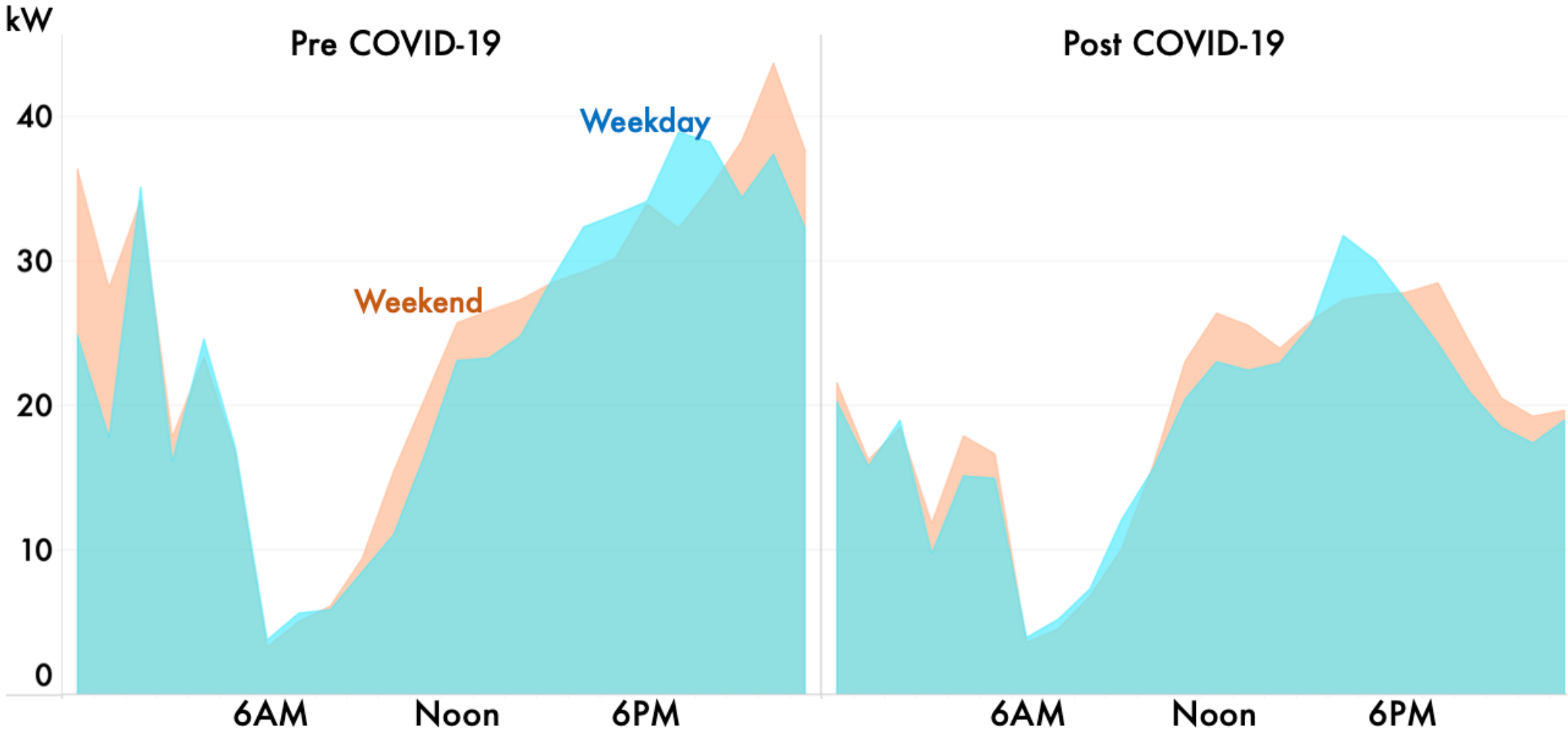

EV Charge Typologies

43 Homes Summer 2022 Austin, TX

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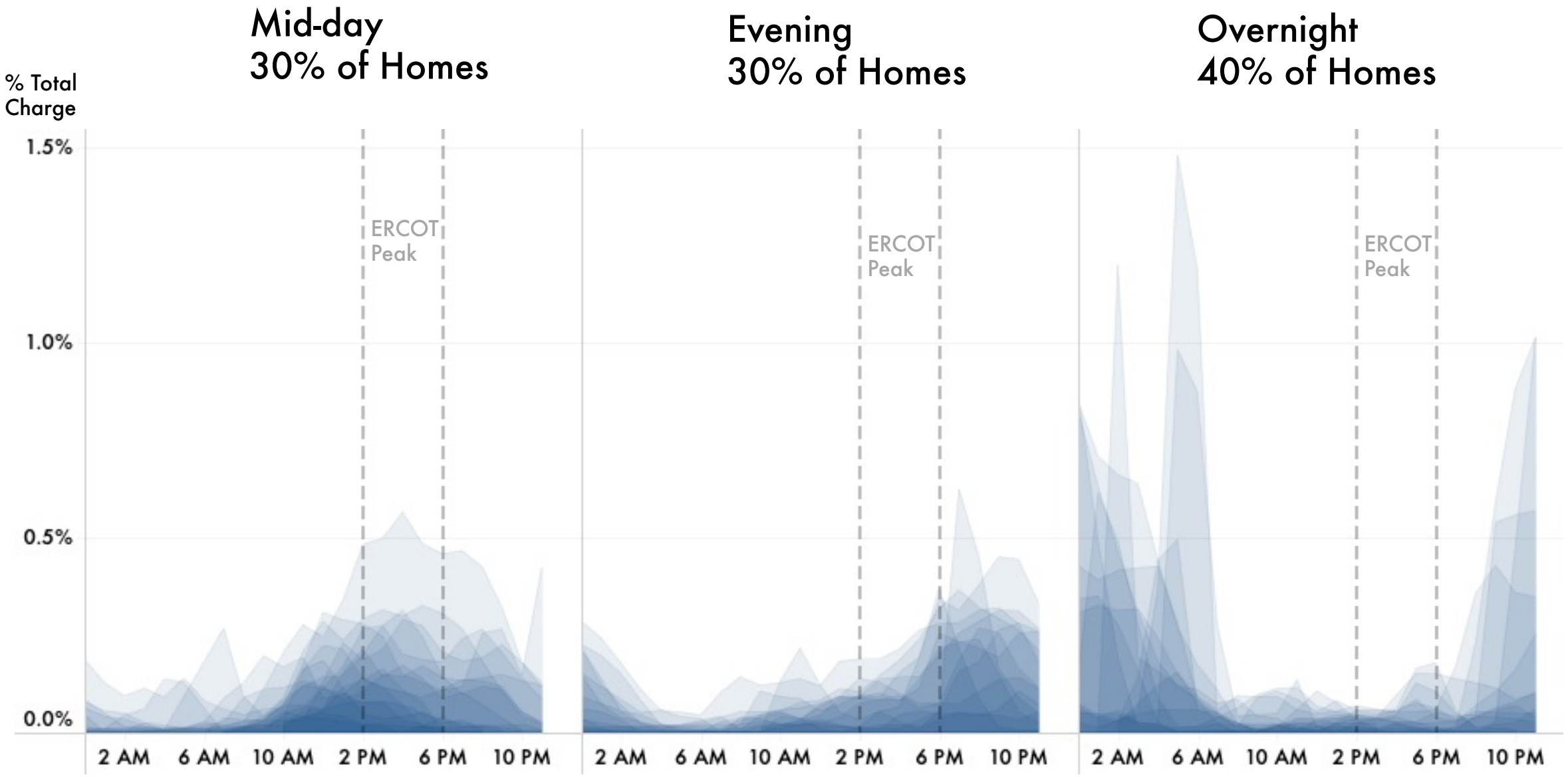

Normalizing Annual EV Mileage

43 Homes Summer 2022 Austin, TX

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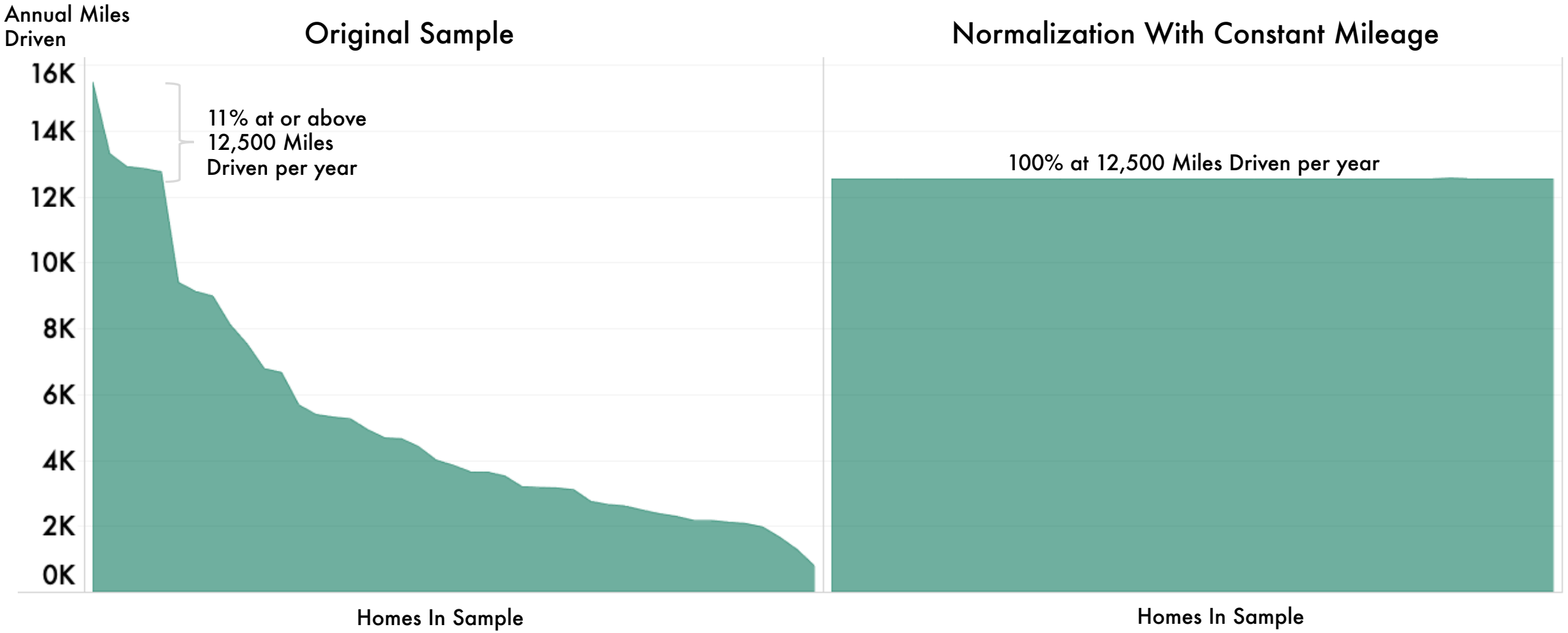

EV Charge Typologies Before/After Normalization

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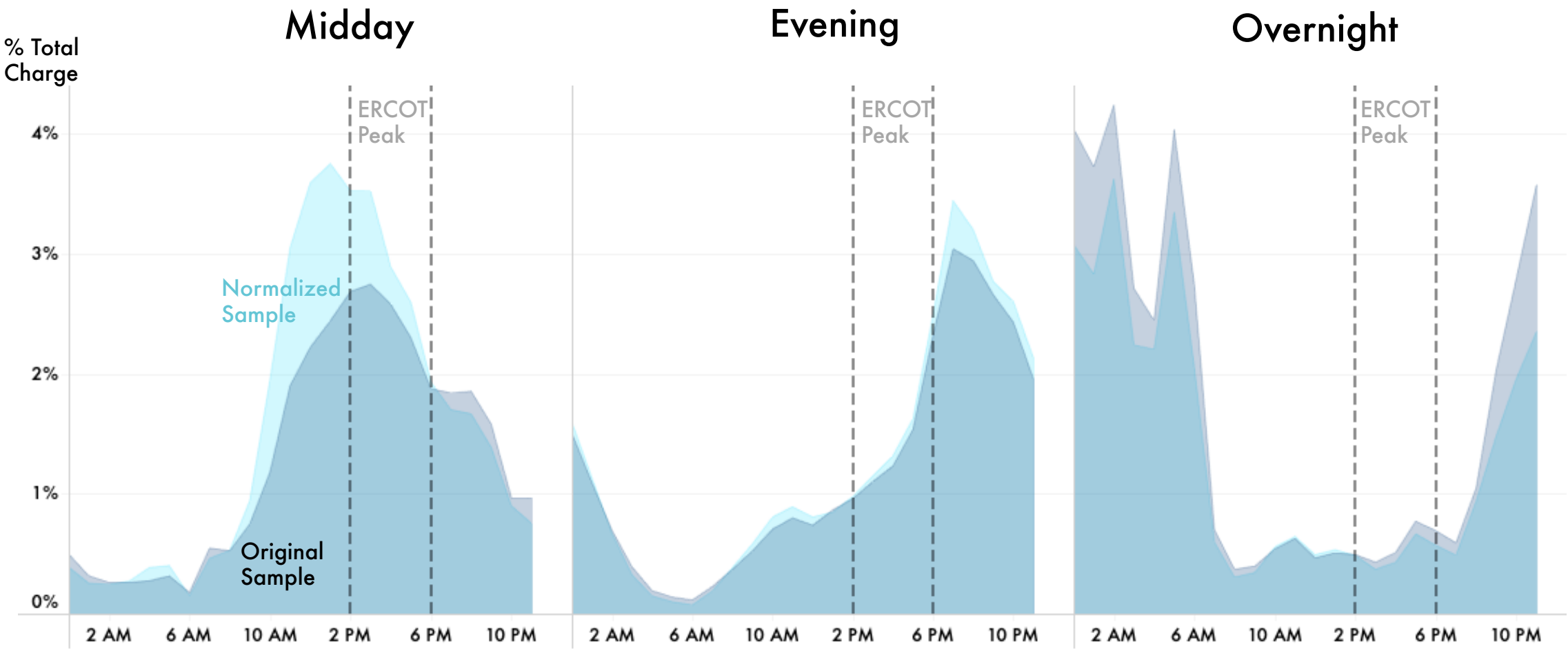
43 Homes Summer 2022 Austin, TX



Average Hourly EV Charge Trend

43 Homes Summer 2022 Austin, TX

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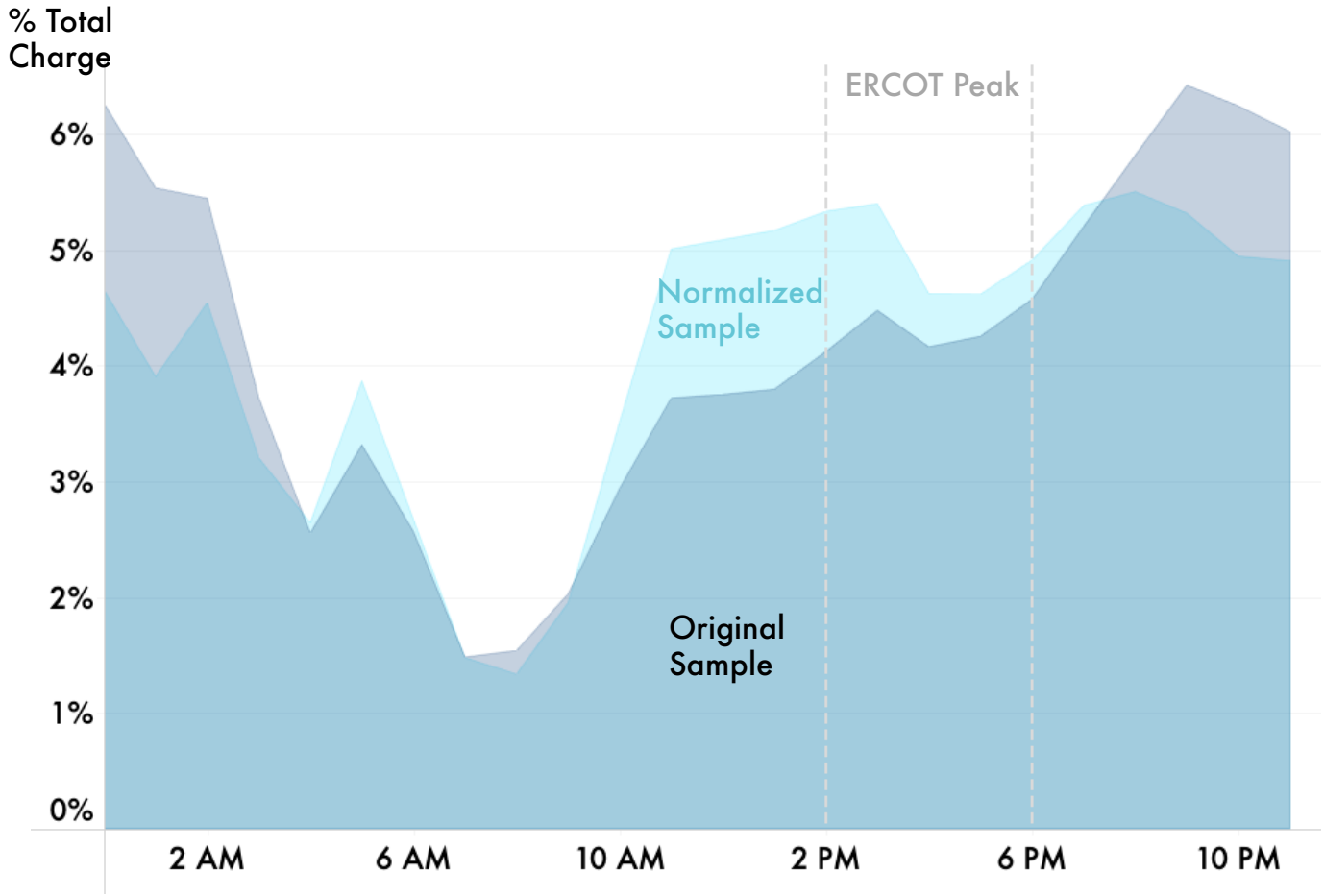

EV Charge Typology Vs Houston Hub LMP

43 Homes Summer 2022 Austin, TX

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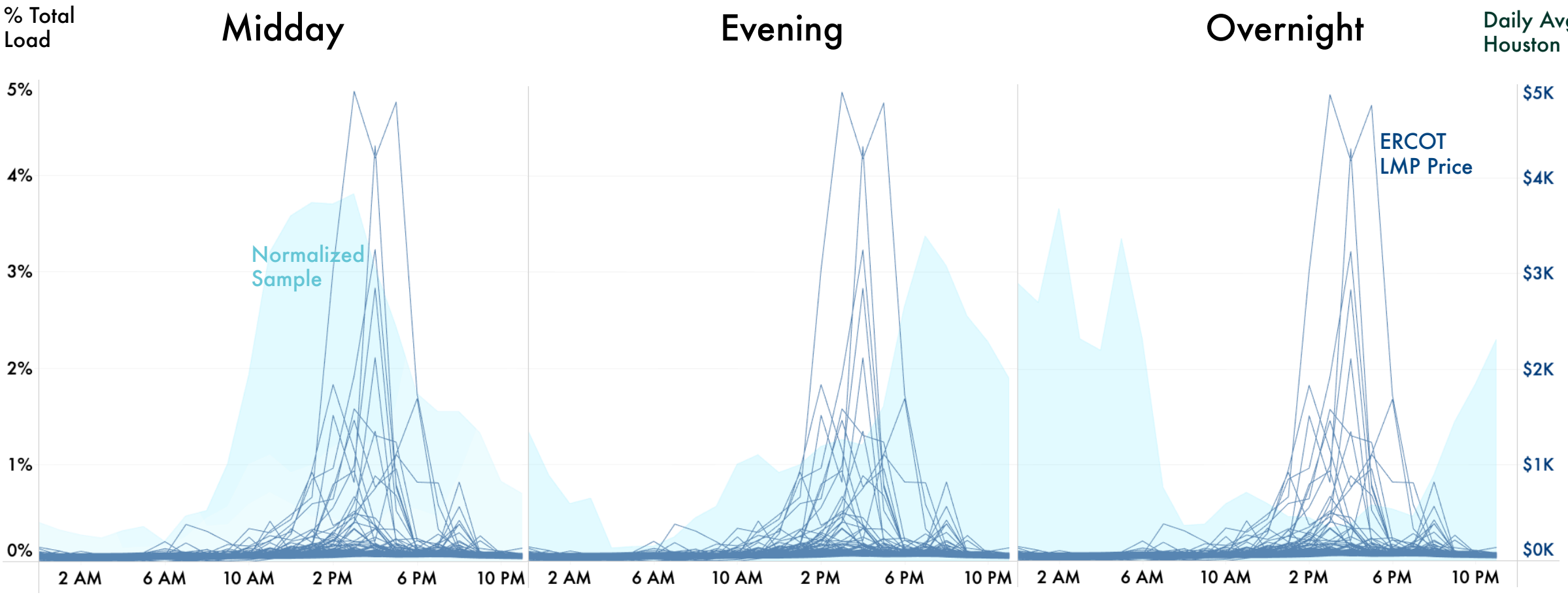

+68 % Cost Increase Vs Status Quo on July 13th

+2 % Cost Increase Vs Status Quo Vs Status Quo on July 13th

-61% Cost Increase Vs Status Quo Vs Status Quo on July 13th

Charging Grid Demand By EV Adoption Level

Based on Normalized EV Charging Trend From Summer 2022 Austin, TX

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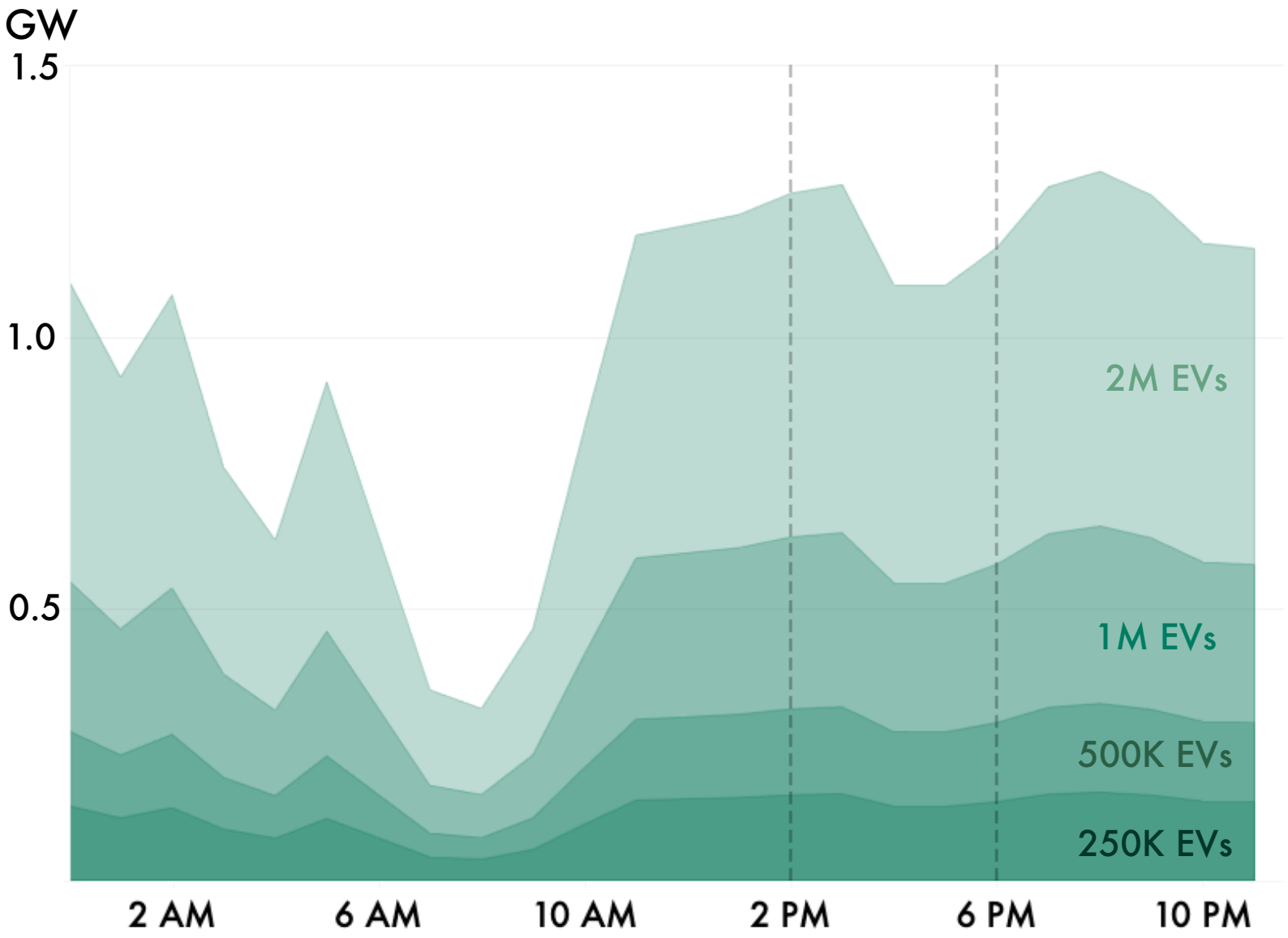

Potential Impact to ERCOT Grid Demand By EV Adoption Level

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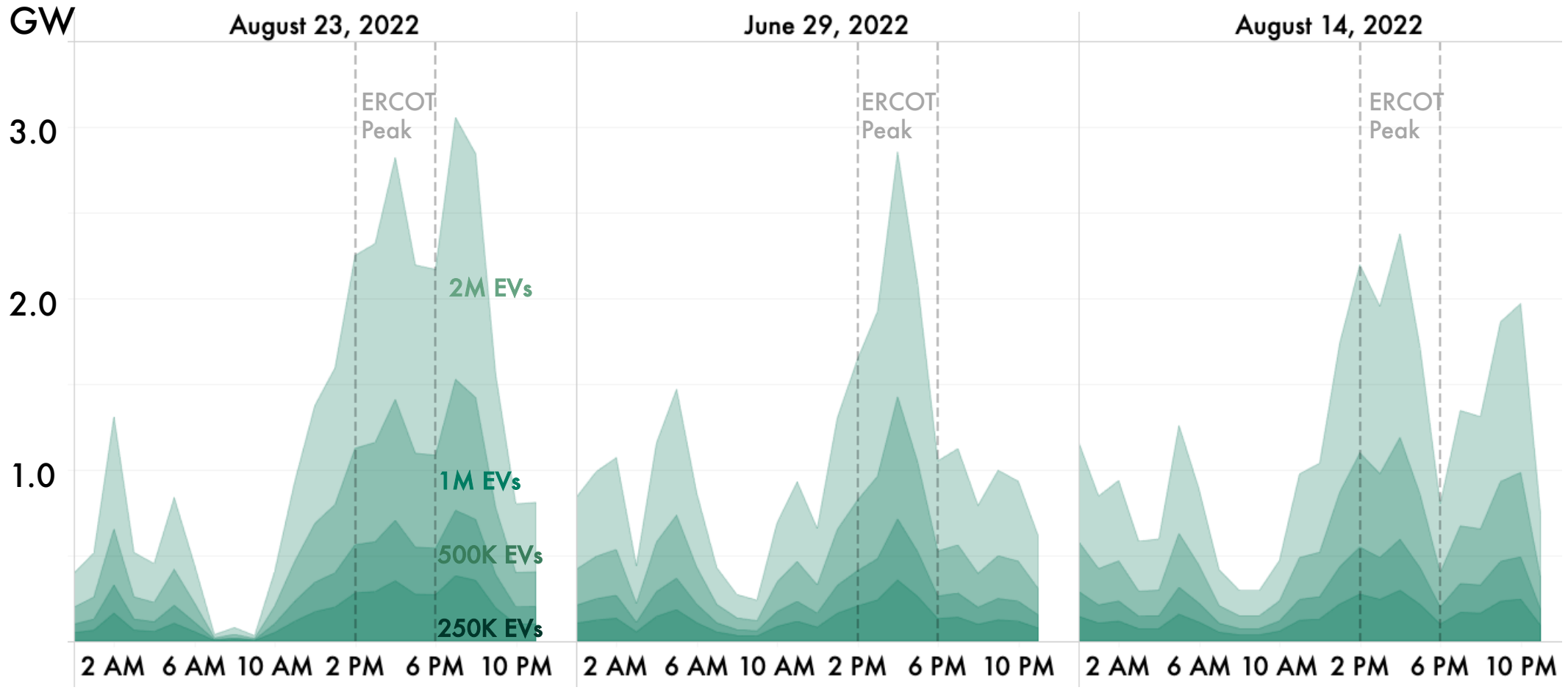
Three Days With Highest EV Charging During Peak Demand After Normalization

Summer 2022 Austin, TX



Balancing Load

Vehicle to Home (V2H)
ERCOT Summer Backup Potential

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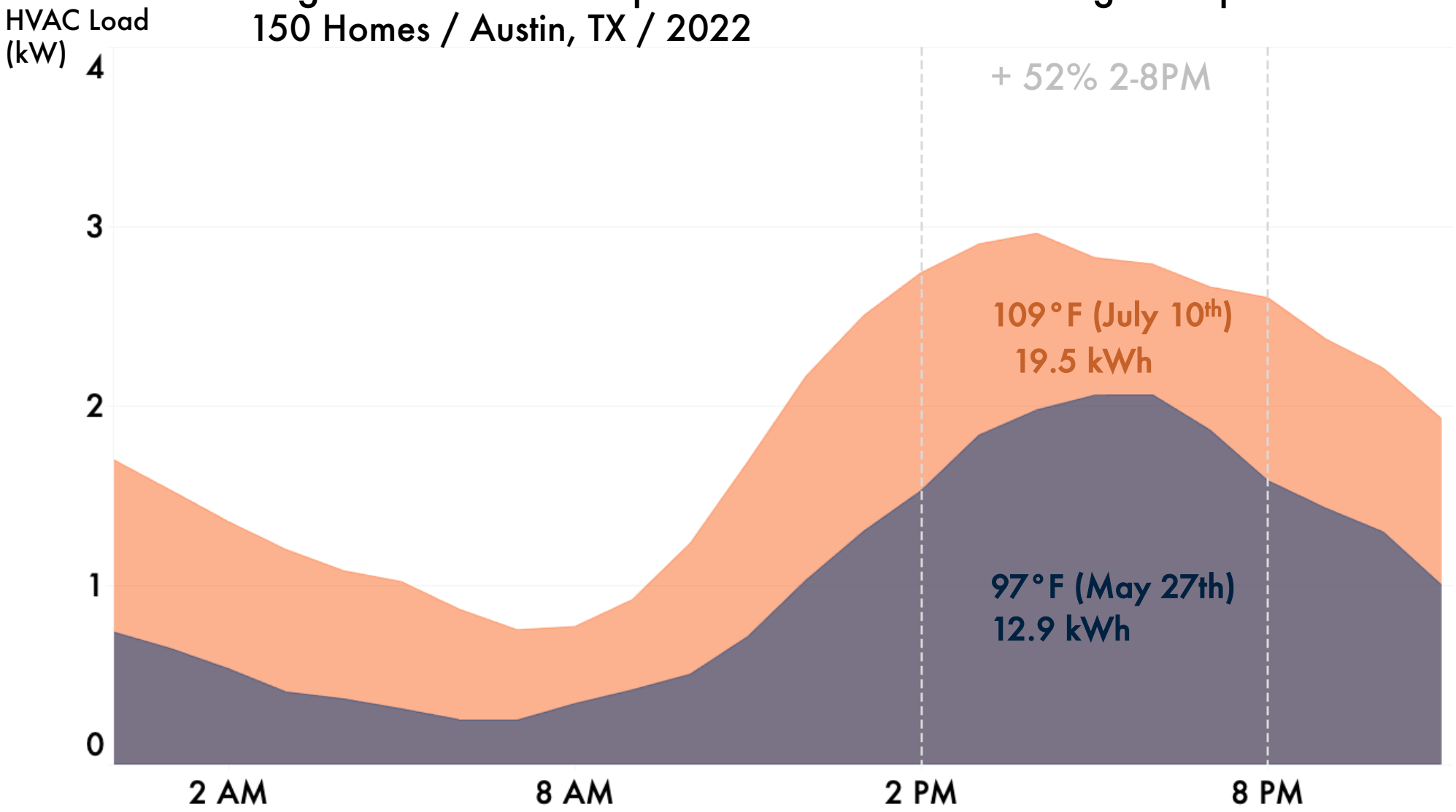
Avg HVAC Load Comparison 97°F vs 109°F High Temperature
150 Homes / Austin, TX / 2022



Vehicle to Home (V2H)
ERCOT Winter Backup Potential

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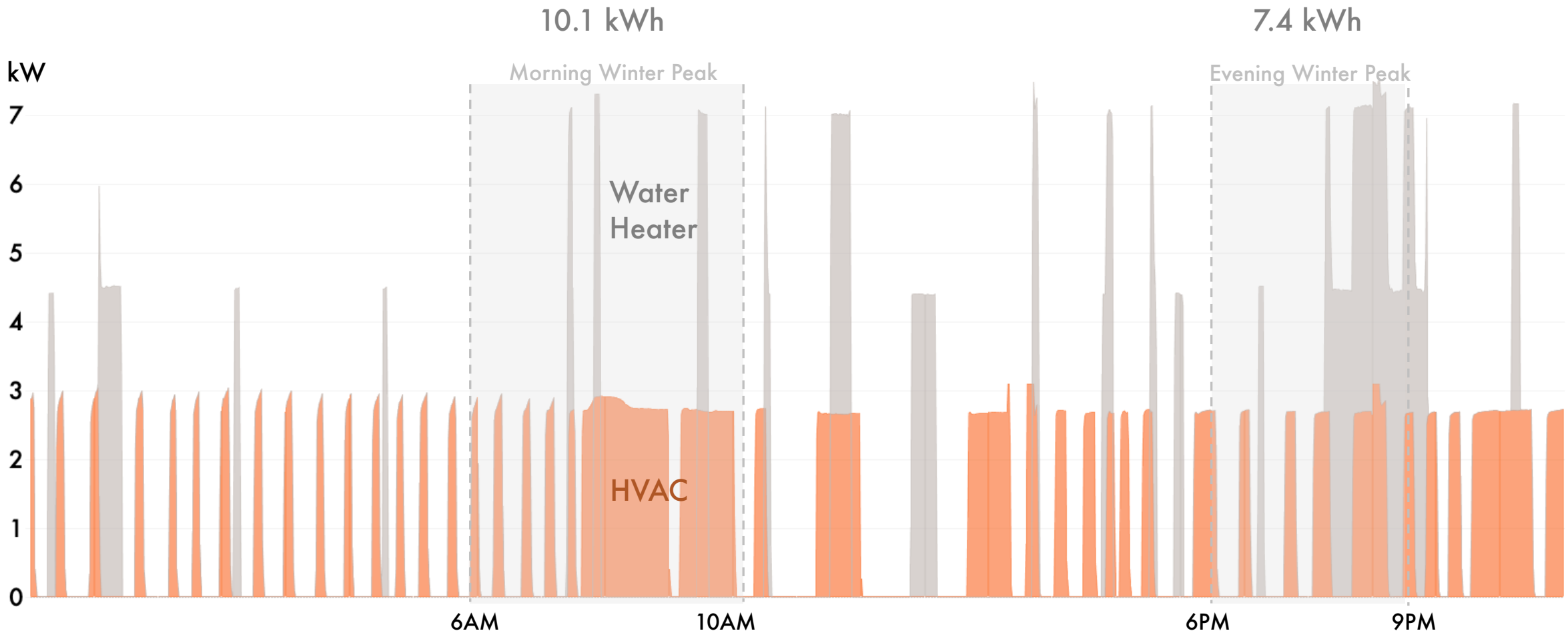
Winter Austin 2022 / One Home With Electric Heat Pump and Water Heater / Minute Level Data



Managed Charging Mechanisms and Outlook

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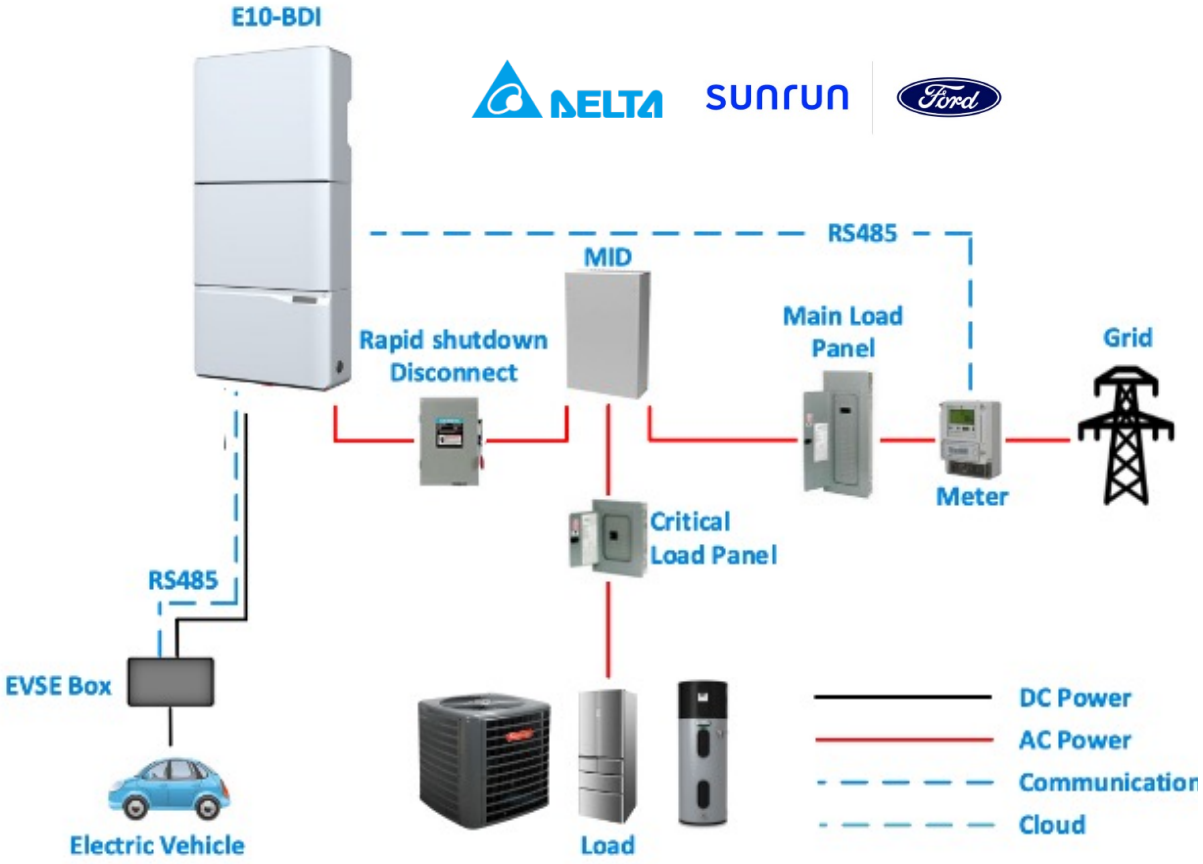
Managed Charging Mechanisms

- Customer behavior controls load (TOU rates, scheduling)
- Utility controls load through EV charger/vehicle telematics
- Customer load control via 3rd-party charging optimization

Managed Charging Outlook

- Utility/aggregator pilots beget programs
- More features now standard
- Moving at the speed of EV adoption

V2H Availability and Outlook



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

IRA Rebates Address Electrical Upgrades and Expensive Hardware

Important to get it 'right' the first time

- Promote 'V2H Ready' homebuilding
- Integrating aftermarket and OEM solutions
- Design for future loads and tech

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