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Draft Transportation Energy Demand Forecast Hourly Results

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November 12, 2026

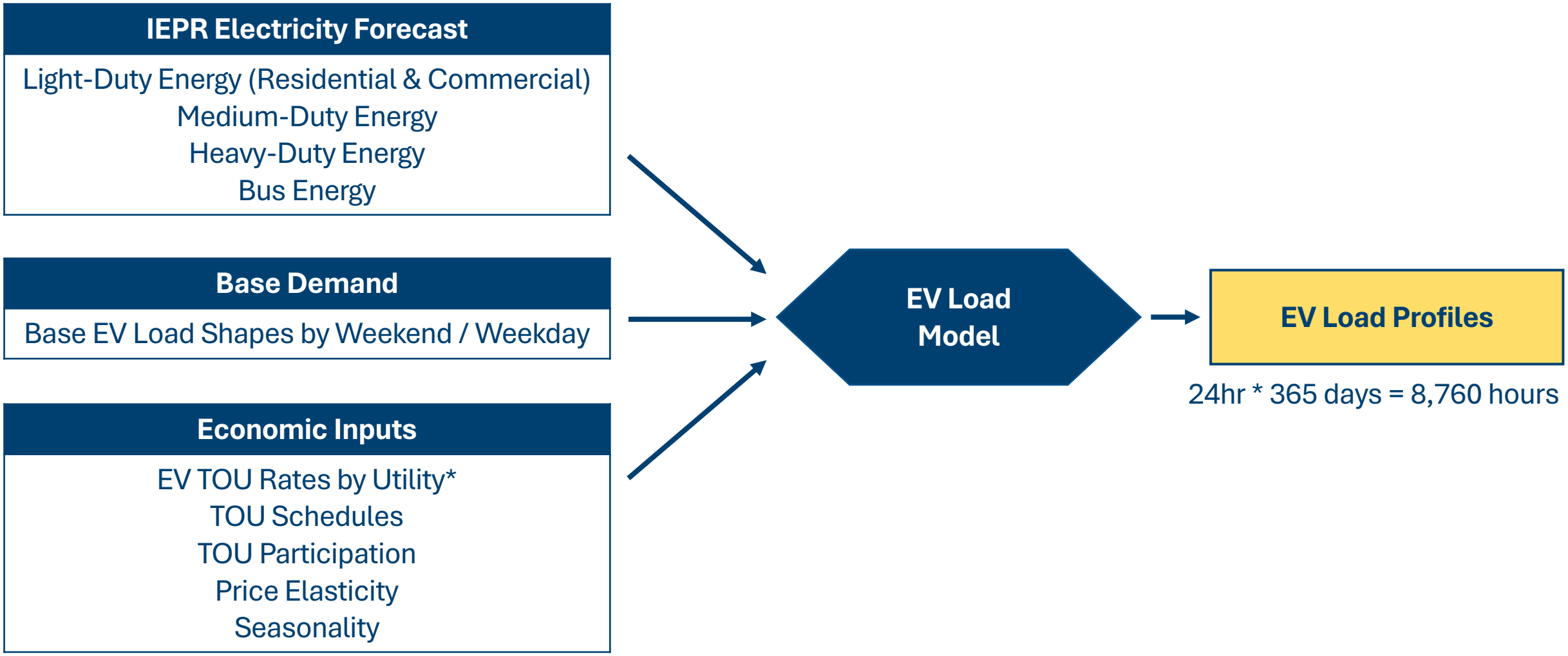
Abbreviations

AATE – Additional Achievable Transportation Electrification
AMI – Advanced Metering Infrastructure
CAISO – California Independent System Operator
DCFC – Direct Current Fast Charging
EV – Electric Vehicle
IEPR – Integrated Energy Policy Report
LD – Light-Duty
MDHD – Medium- and Heavy-Duty
TOU – Time of Use
ZEV – Zero-Emission Vehicle

Load Shapes vs. Load Profiles

- Terms “load shapes” and “load profiles” are often used interchangeably
- “Shapes” = shape of the hourly load (i.e., normalized)
- “Profiles” = Both shape and magnitude (e.g., kilowatts) of load

Model Schematic



*Utilities Included: PGE, SCE, SDGE, LADWP, SMUD

Load Shapes – What is New?

Light-Duty Vehicles

1. Personal Vehicles
   - Single Family Home
     - **AMI L2 PG&E**
     - **AMI L2 SCE**
     - **AMI L2 SDG&E**
     - **AMI L2 SMUD**
     - **L1 (Flat Load)**
   - Multi-Family Home
   - Destination (away from home)
     - **AMI DCFC Corridor/large stations**
     - **AMI Workplace**
     - **AMI Other Away From Home Charging**
2. Commercial Vehicles
3. Other (Govt and Rental) Vehicles

AMI Load Shapes and L1 no longer employ the EV Load Model's TOU ratio load transformation component

AMI L2 Detection

Group 1
Homes with EV registered



Charging days



No charging days

Group 2
Homes with no EV registered

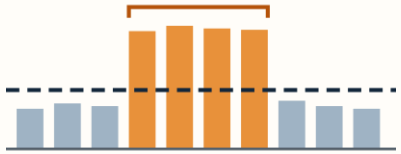




1

Set a Baseline
Each home's typical load by month, day type, and local temperature

→



2

Test Each Hour
Above baseline, sustained and steady

→



3

Label Each Day
Give each day one label charging or no charging

→



4

Isolate EV Load
Subtract the home's own matched no-charging days, hour by hour

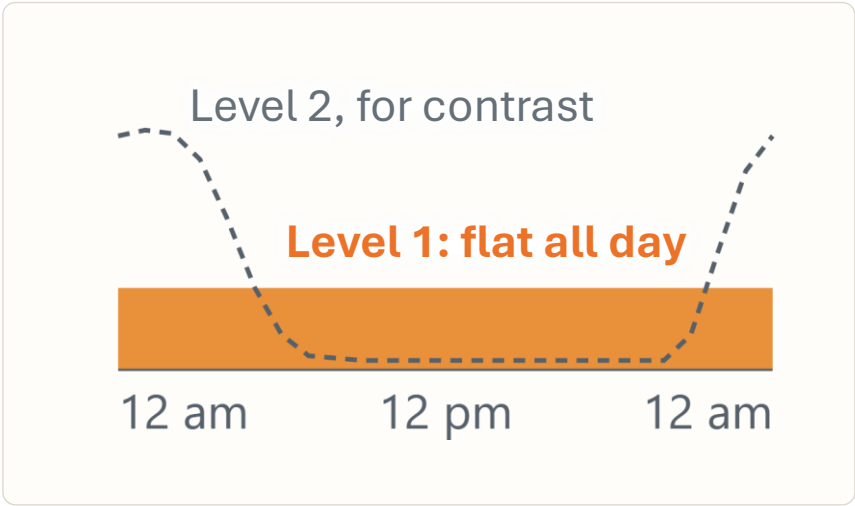
L1 Assumption

Too Small to Measure

At 1.4–1.9 kW, Level 1 looks like everyday appliance use in hourly meter data.

Slow, Long Sessions

A typical day's driving takes 7+ hours to recharge, so charging spans most of the time parked.



AMI DCFC



1

Match and Screen

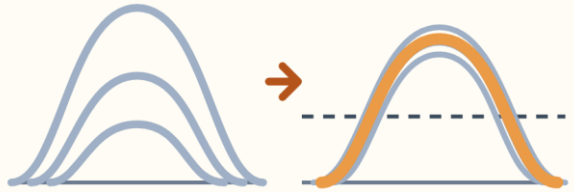
Contractor matched known DCFC addresses to AMI meters. Weak matches, data gaps, long outages and solar sites are dropped



2

Group and Compare

Stations are grouped by site type, size, weekday vs. weekend and month

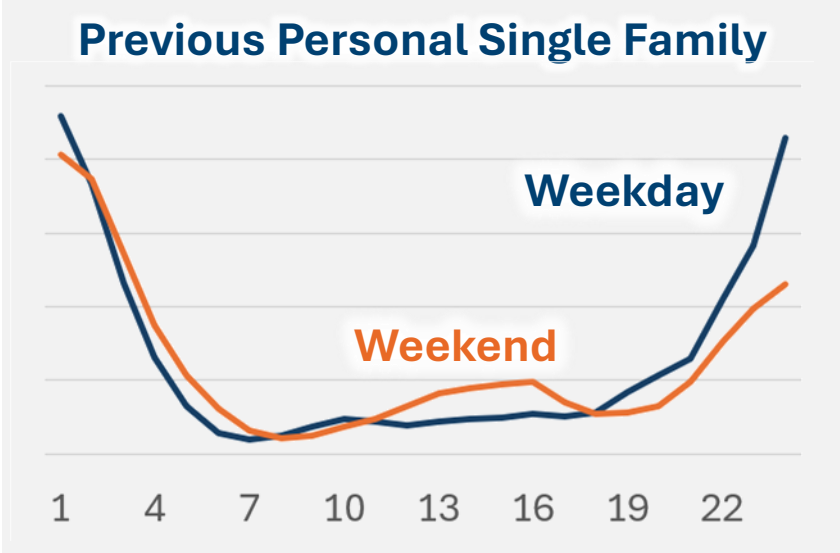


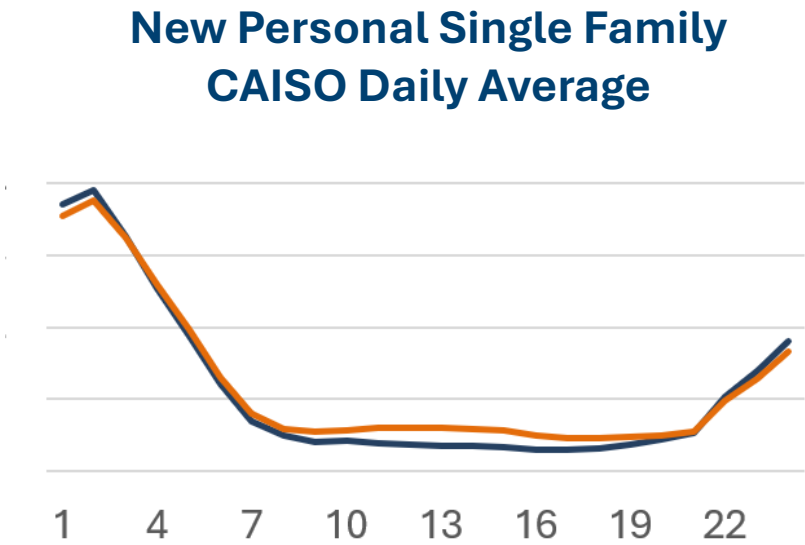
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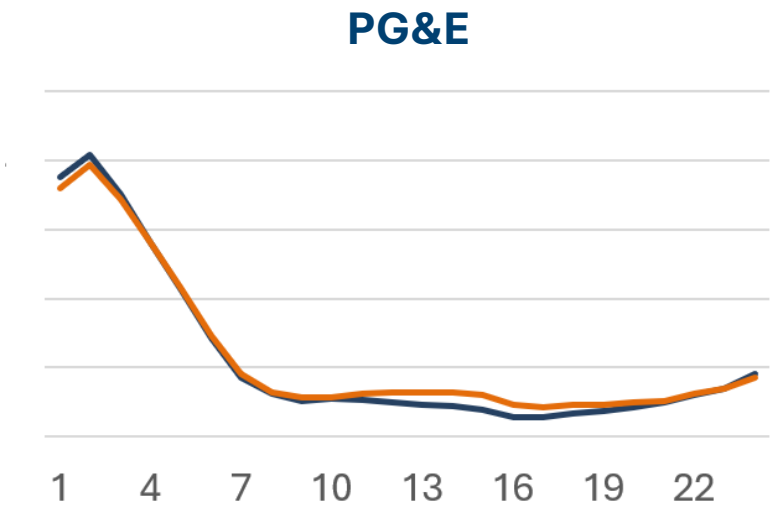
Normalize and Average

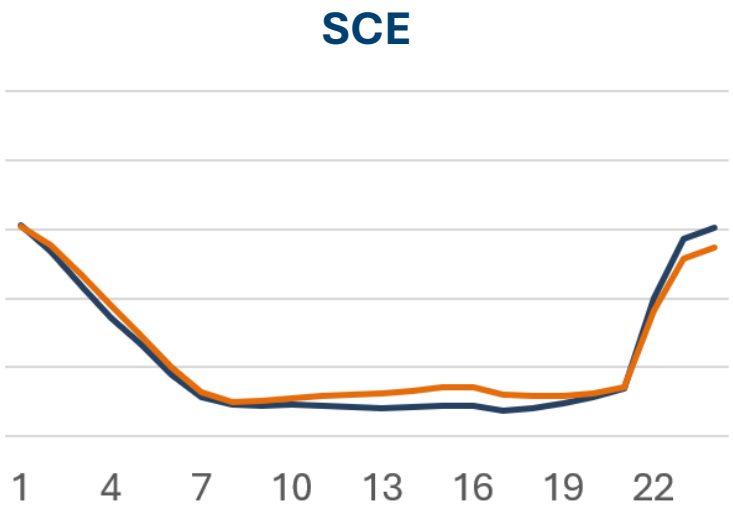
Within each group, every station is normalized and then averaged across stations

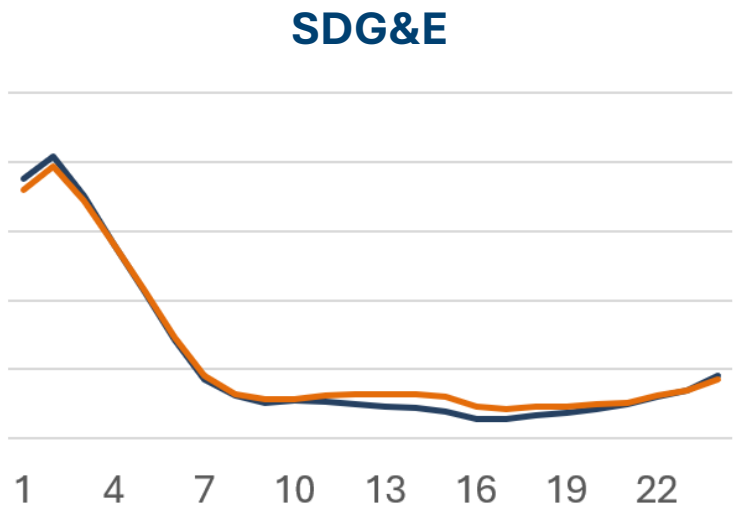
Single Family Load Shape





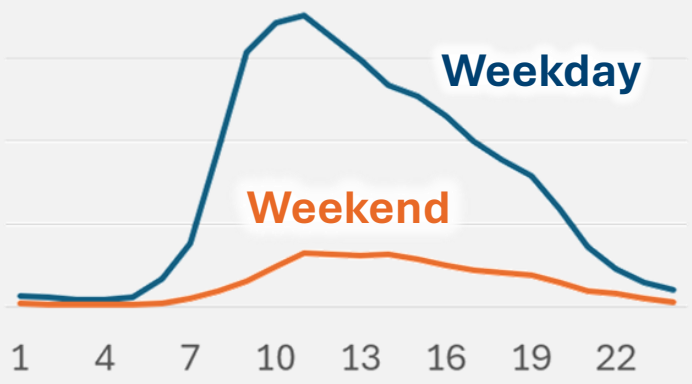




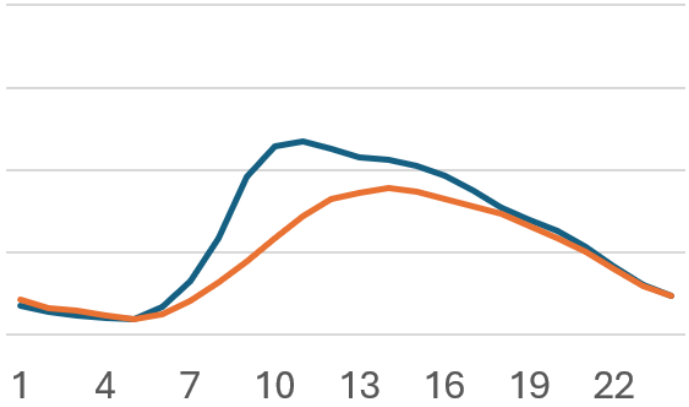


Destination (Away from Home) Load Shape

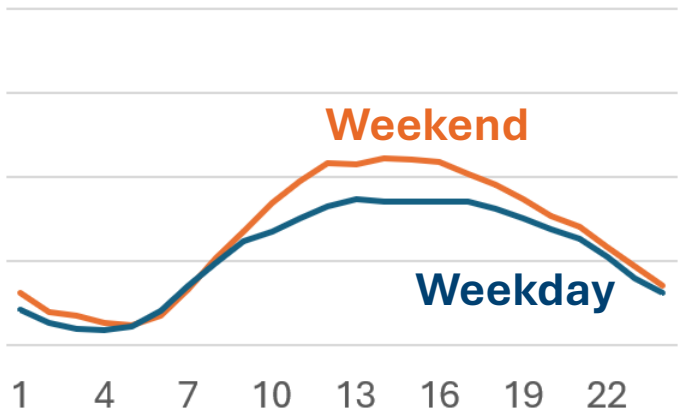
Previous Personal Destination



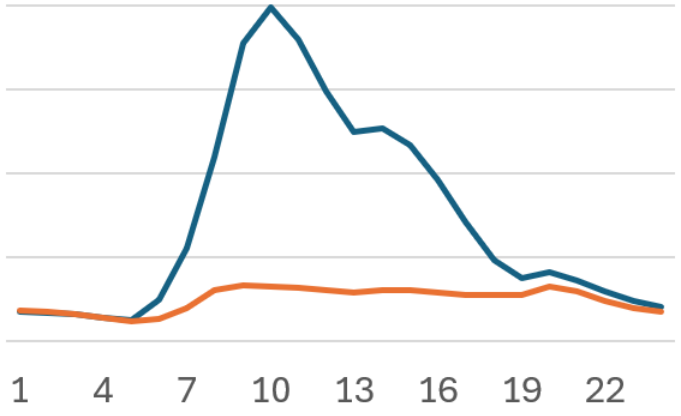
New Personal Destination CAISO Daily Average



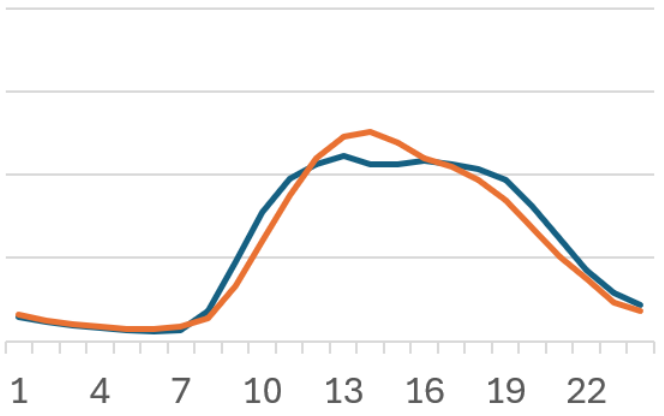
Corridor/Large Stations



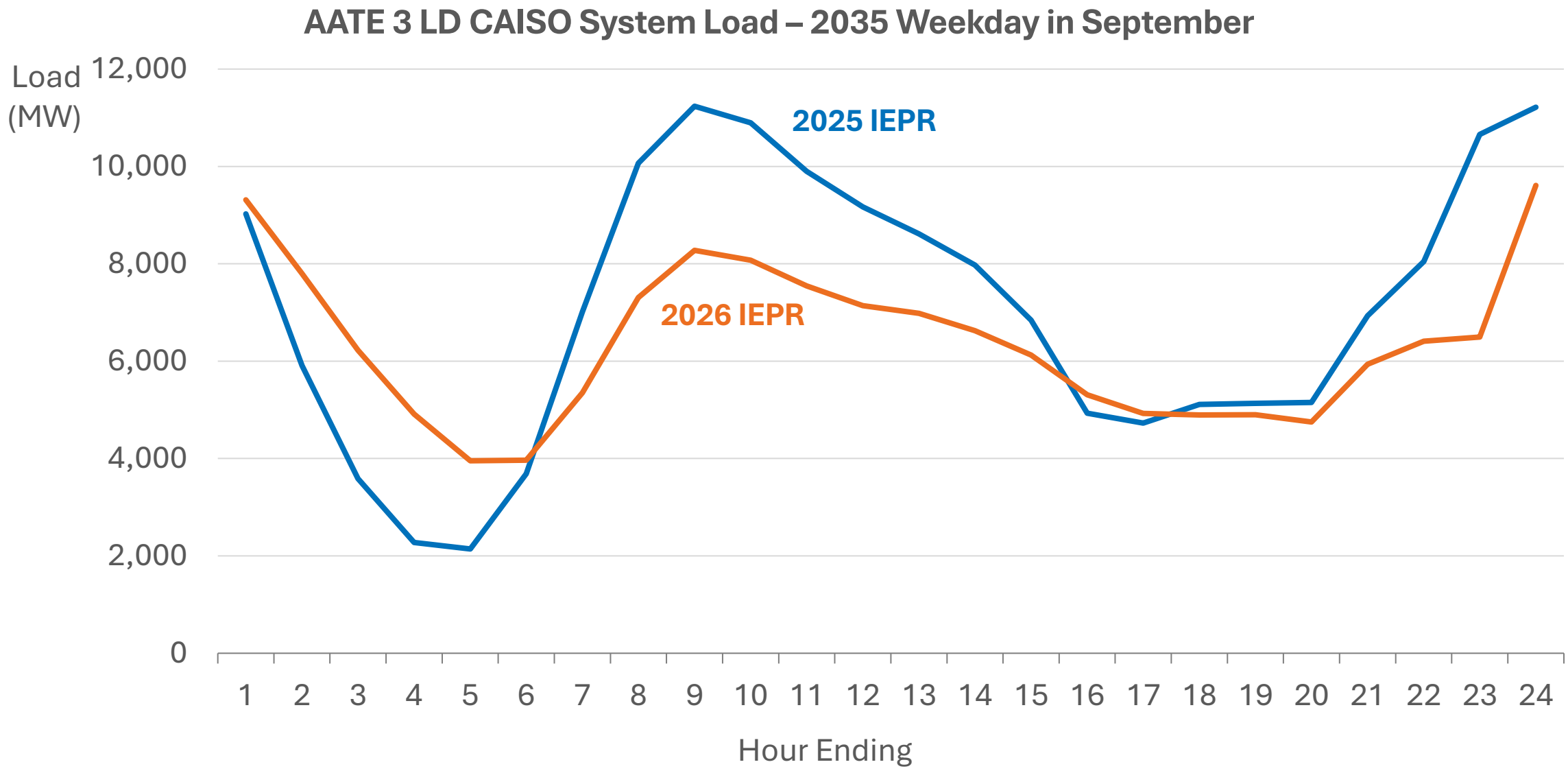
Workplace



Other Away From Home

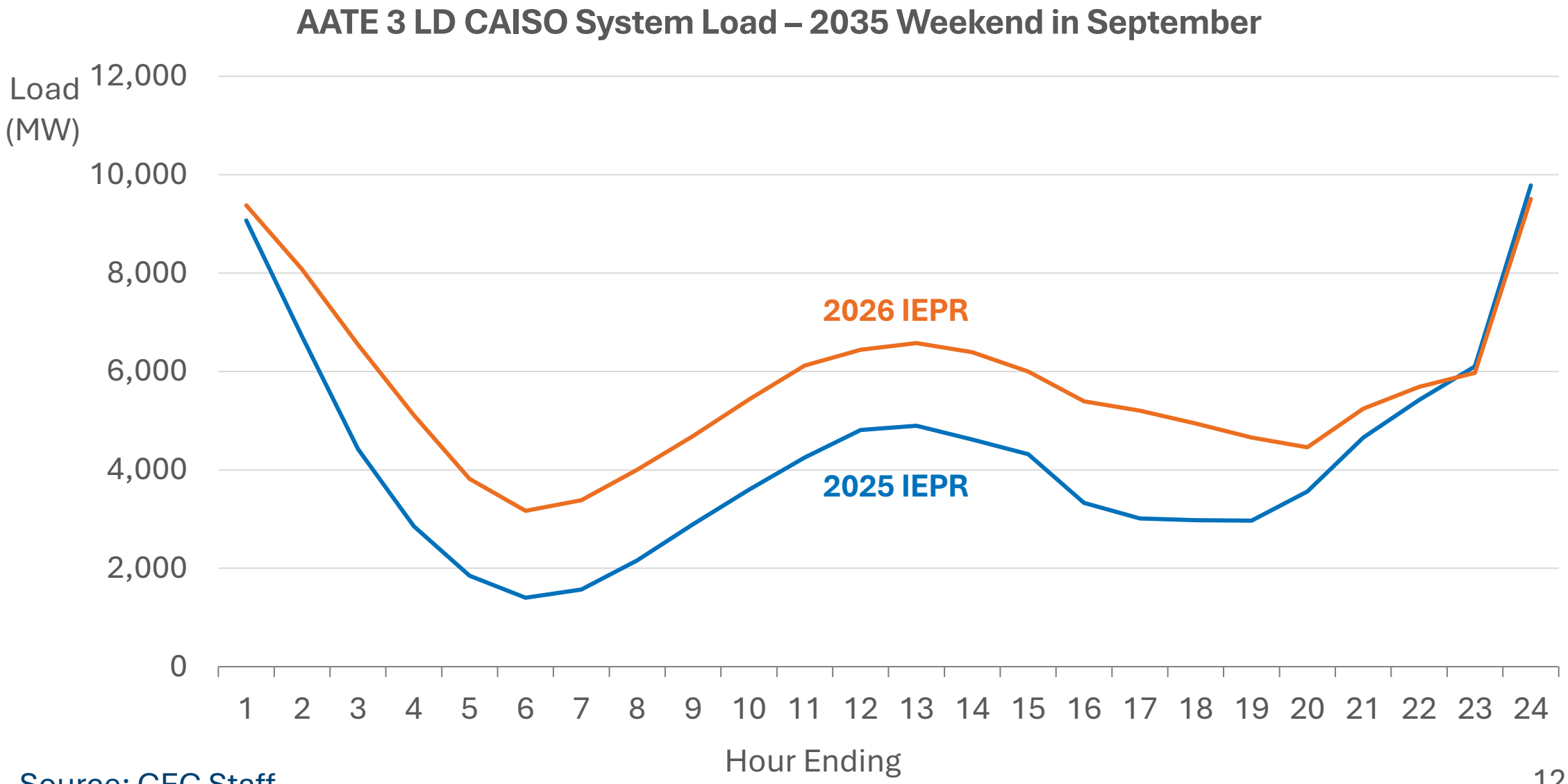


EV Load Profile – LD Vehicles Weekday



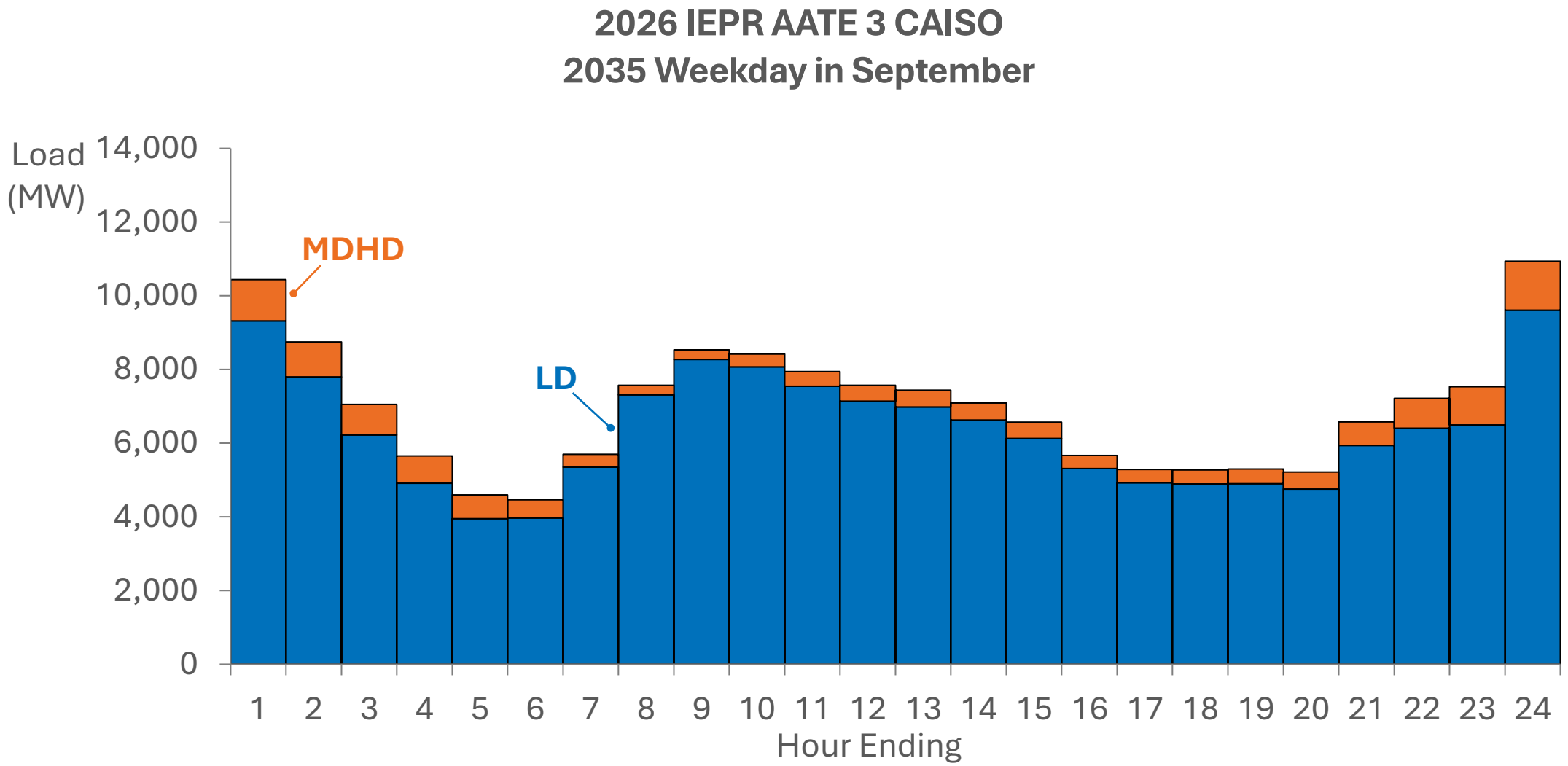
Source: CEC Staff

EV Load Profile – LD Vehicles Weekend



Source: CEC Staff

EV Load Profile – System Load



Source: CEC Staff

Thank You!

Questions? Comments?

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