



How Rate Design Affects Load

Electric Vehicles & Customer Sited Generation at Riverside Public Utility

September 18, 2018

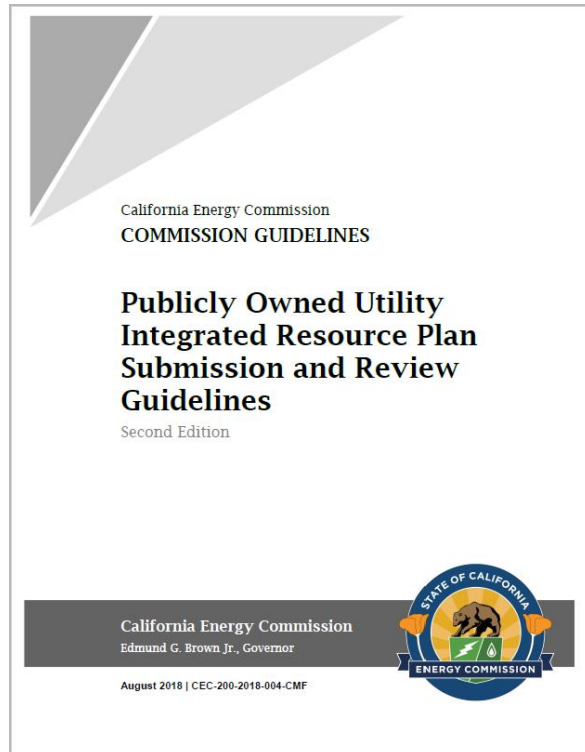
Presented by:

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Riverside Public Utilities

The Challenge

New Regulations



Need to Develop City-Level Data



New Rate Schedules

Electric Rate Schedule

Effective January 1, 2019

Residential Electric Rate Schedule

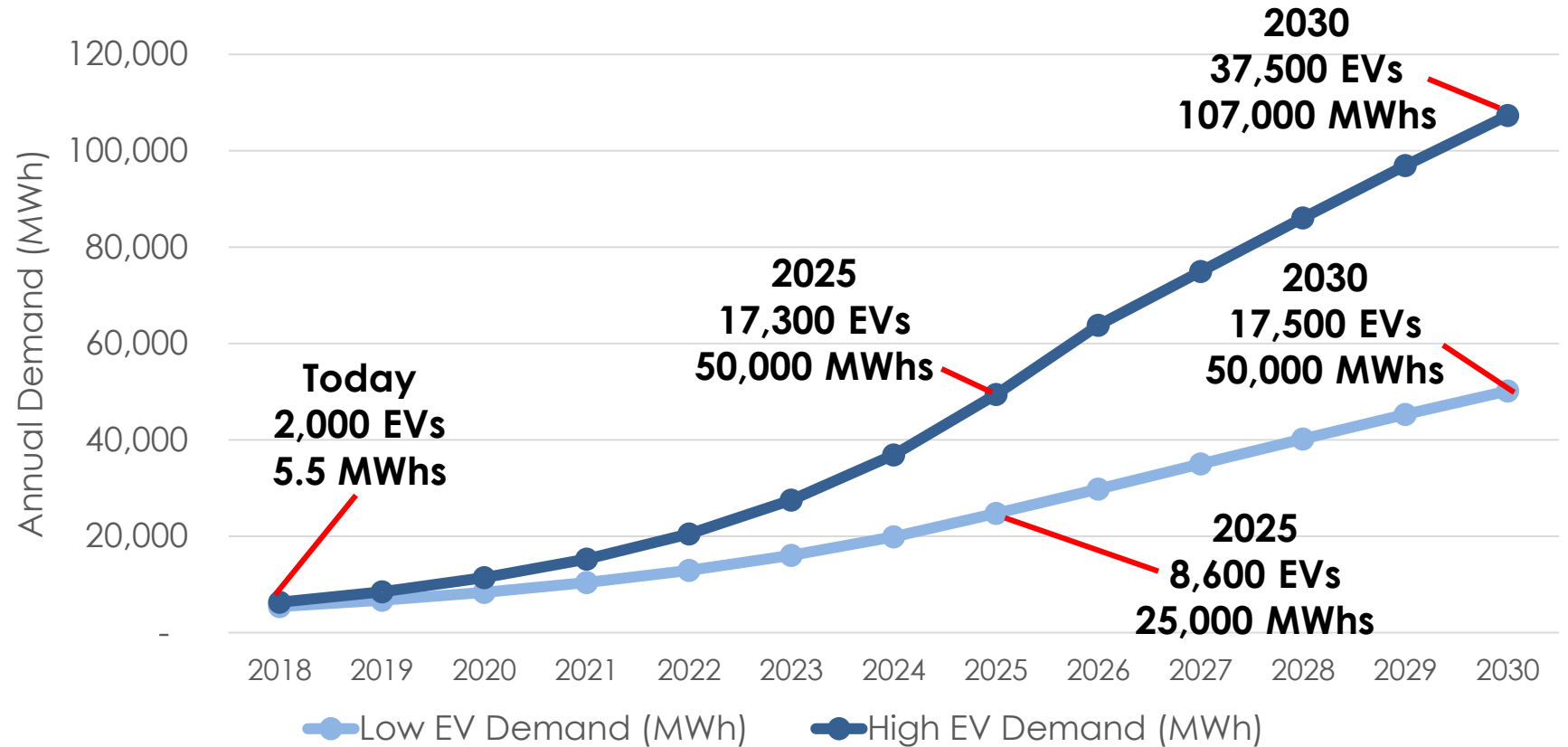
Commercial Electric Rate Schedule

Residential EV Growth in Riverside

(Light-Duty Vehicles Only)

California Energy Commission Model for EV Adoption

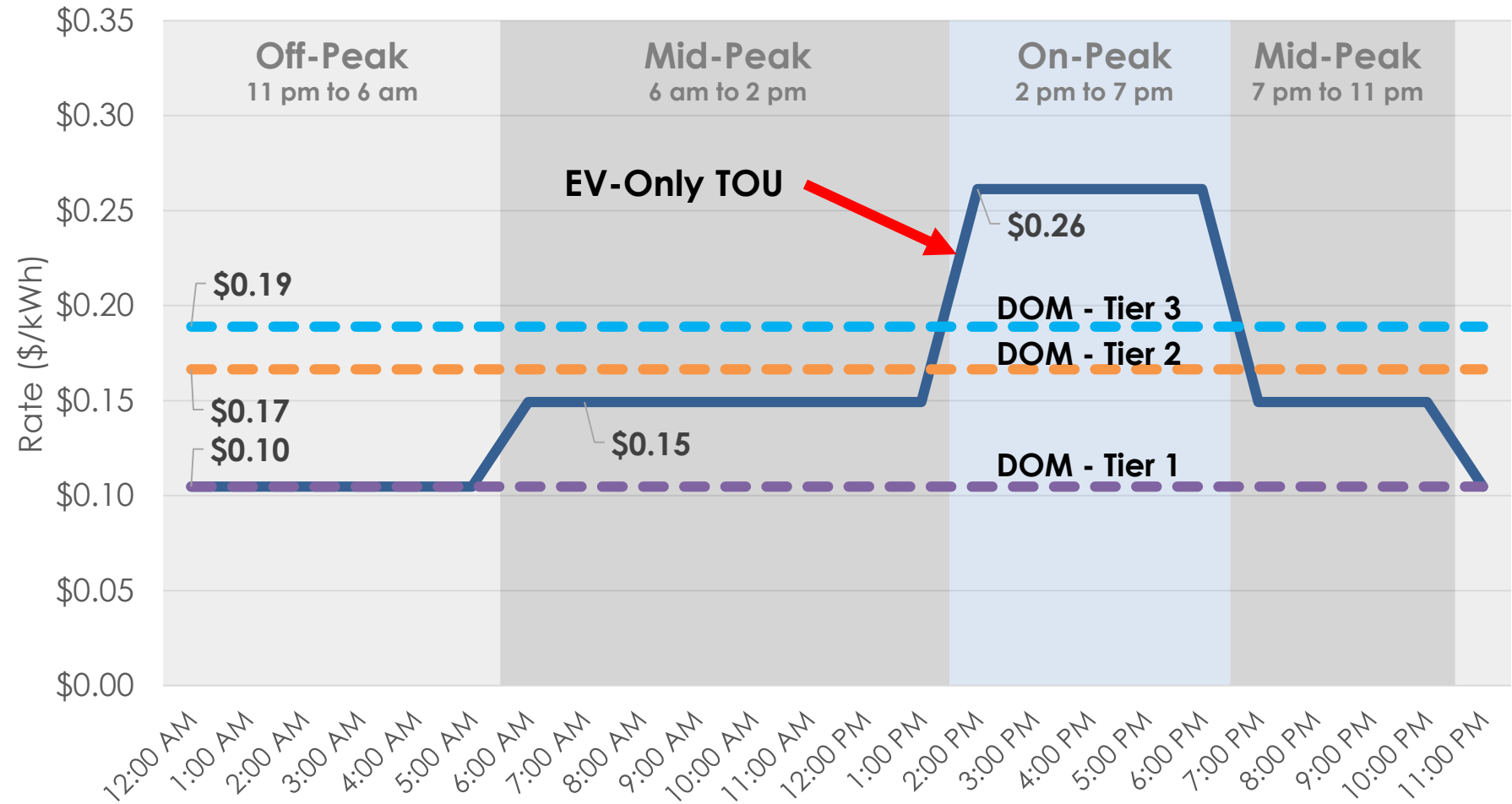
Meet state goals - 1.5 million EVs sold by 2025 and 5 million EVs sold by 2030



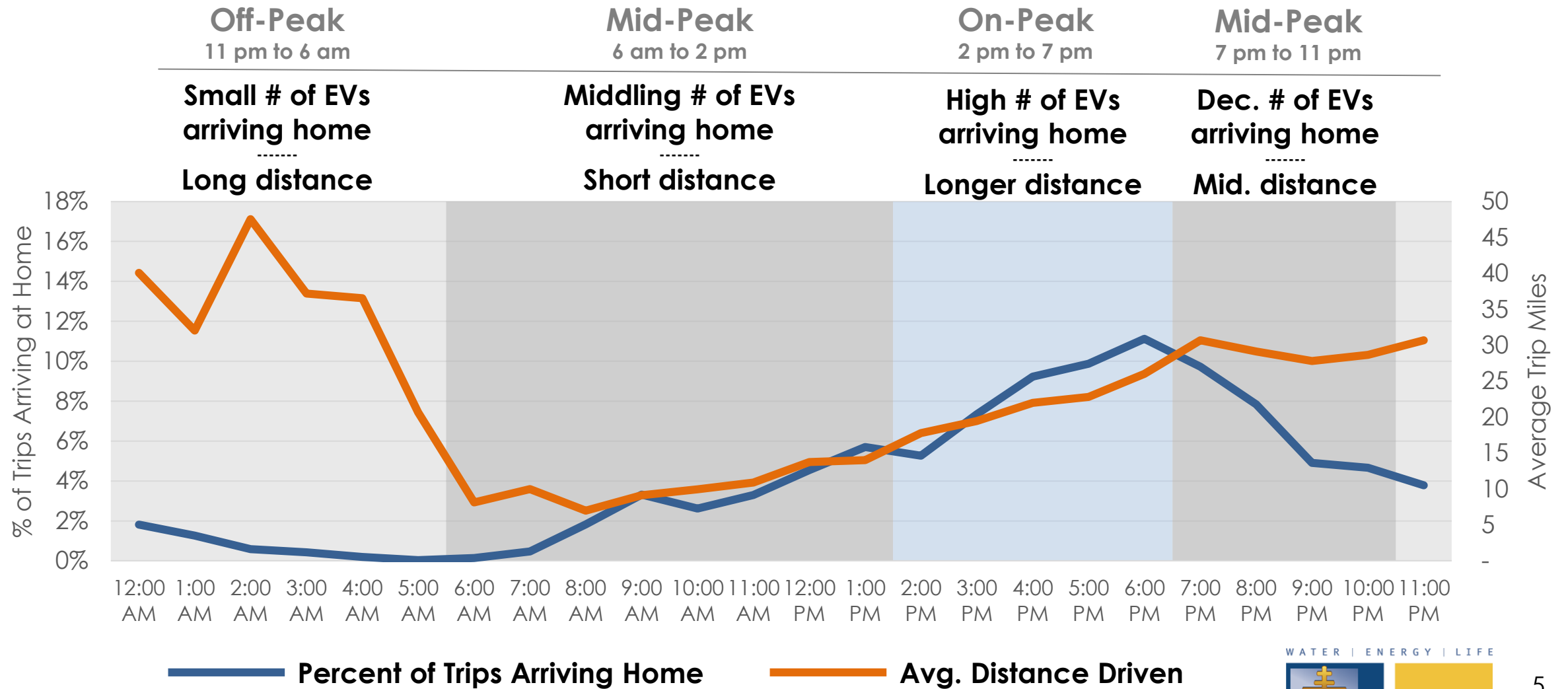
2019 Domestic and EV-Only TOU Rate Tariffs

Riverside Public Utility was in a rate setting process

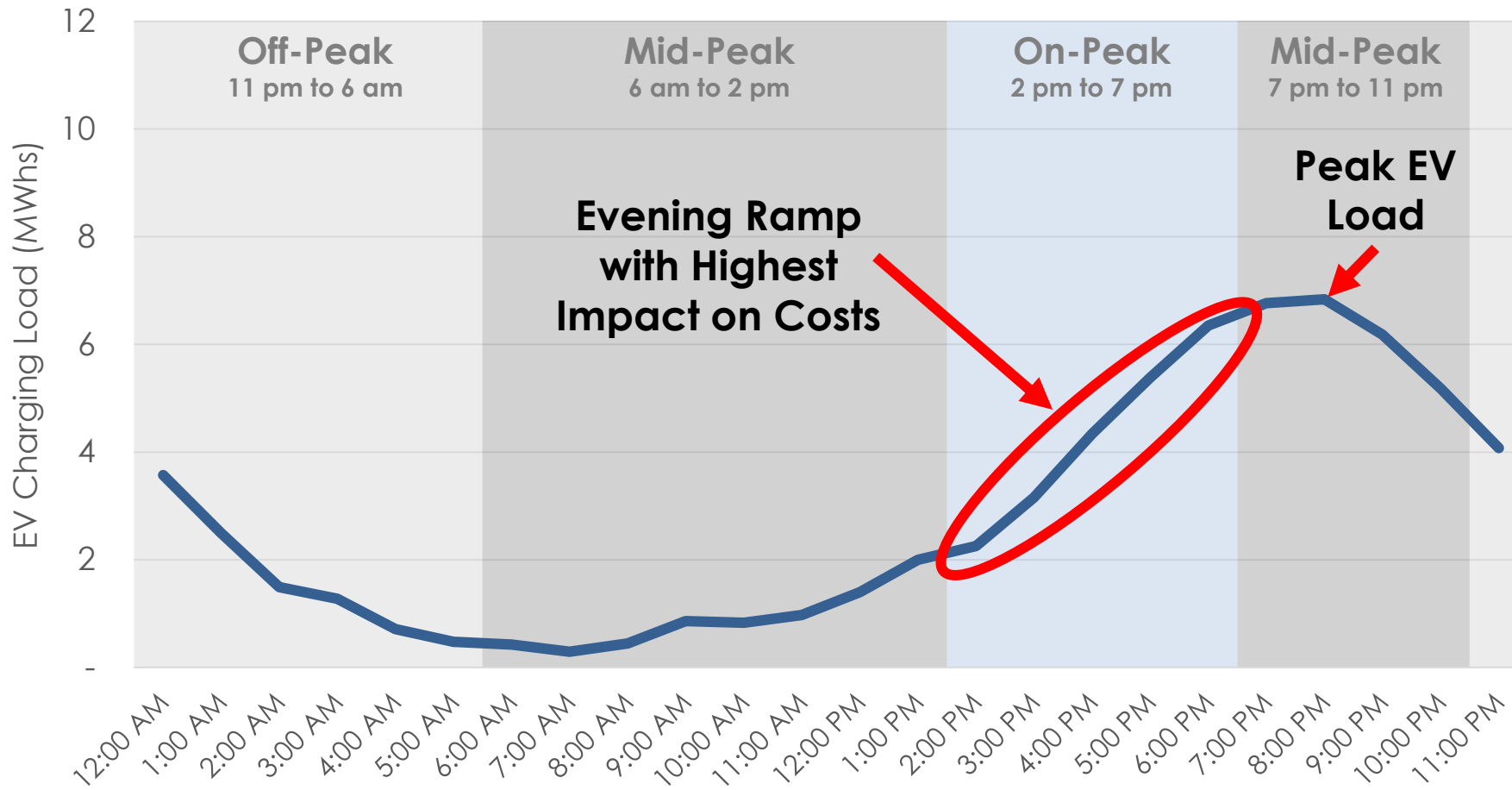
How would these rates affect both adoption of technology and load profiles?



Residential EV Charging Characteristics



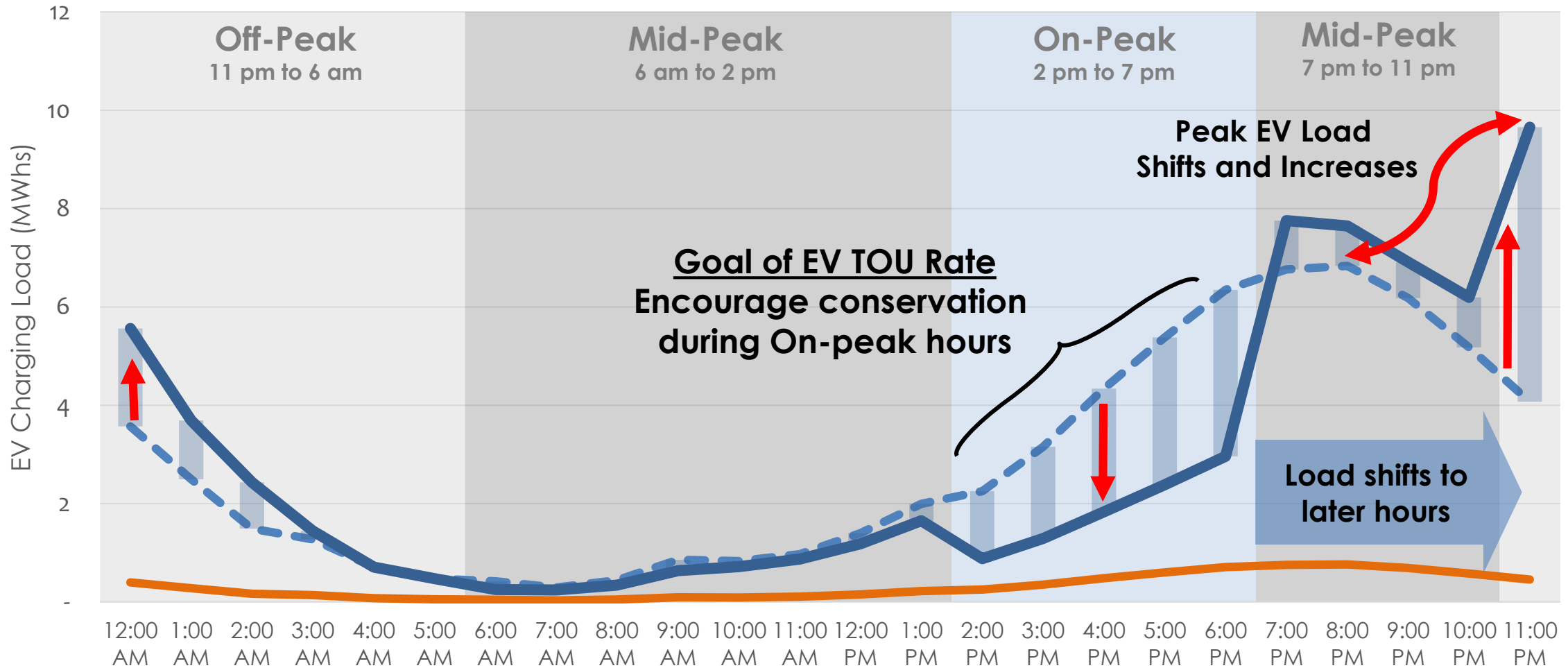
Unconstrained EV Charging Load



Evening ramp aligns with RPU's peak daily load demand – when residents arrive home

Peak Charging occurs between 7 and 8 pm

EV TOU Tariff & Residential Charging Patterns



Outcomes

- Iterative process
- Notable changes in forecast load and daily load shape due to design of the rate tariff
- Provides significant information on directionality of change
- Assumptions and uncertainty
 - Adoption rates, technological changes, consumer behavior
 - Interrelationship of inputs may be significant
- More data, more data, more data