WHEN TRUST MATTERS

Electric Vehicle Update

Pacific Gas & Electric's Business Electric Vehicles (BEV) Dynamic Load Profiles

AEIC – WLRA Conference

Paula Ham-Su, DNV

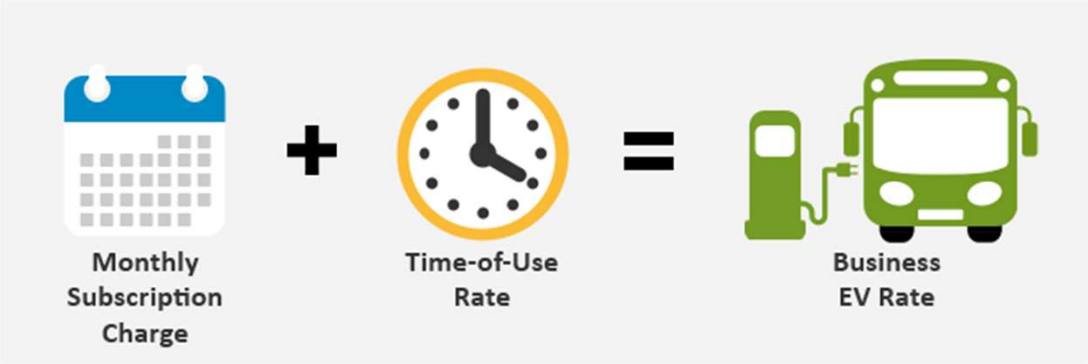
29 October 2021

Disclaimer

- DNV is PG&E's Dynamic Load Profiling consultant
- This presentation is based on publicly available data
- PG&E did not review, comment, or approve this presentation

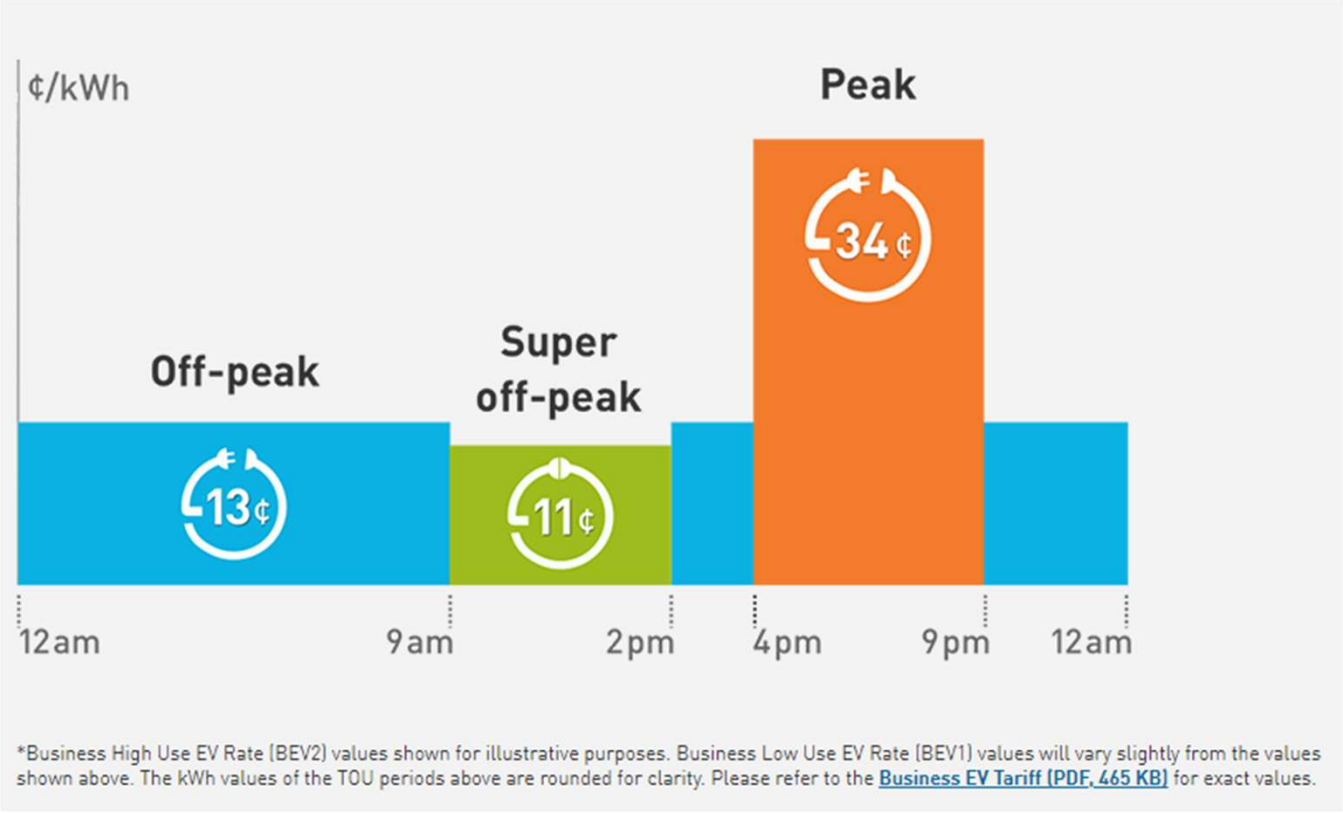
Brief overview of PG&E's BEV rates
Demand component

- BEV1 – for customers 100 kW or less (higher *subscription* charges, sold in blocks of 10 kW)
- BEV2 – for customers over 100 kW (lower *subscription* charges, sold in blocks of 50 kW)
- *Subscription* is the number of blocks needed, declared in advance. The penalty for going over is 2x the price of the kW



Source:
https://www.pge.com/en_US/small-medium-business/energy-alternatives/clean-vehicles/ev-charge-network/electric-vehicle-rate-plans.page

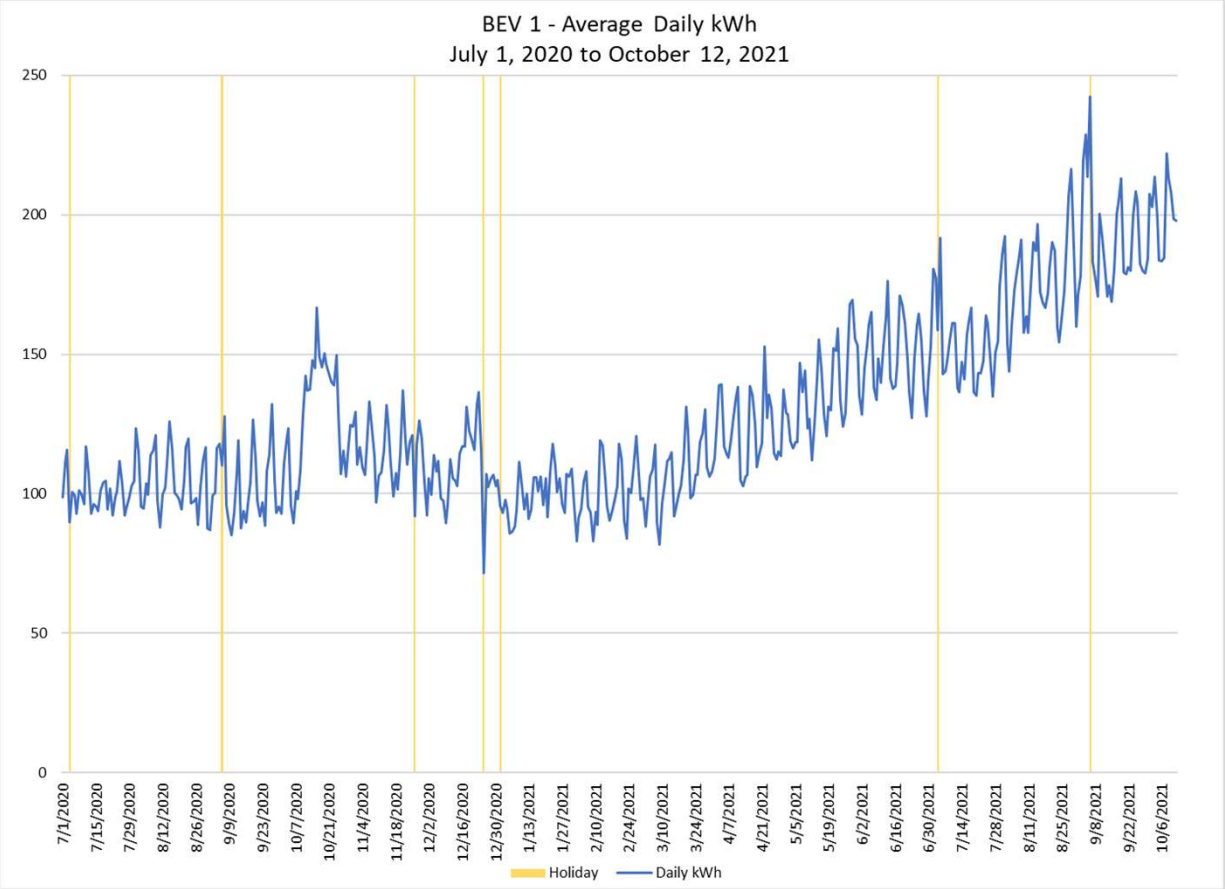
Brief overview of PG&E's BEV rates TOU component



- TOU designed around solar availability > lowest cost is in the middle of the day.
- No day of the week or holiday variation
- No seasonal variation

Source: https://www.pge.com/en_US/small-medium-business/energy-alternatives/clean-vehicles/ev-charge-network/electric-vehicle-rate-plans.page

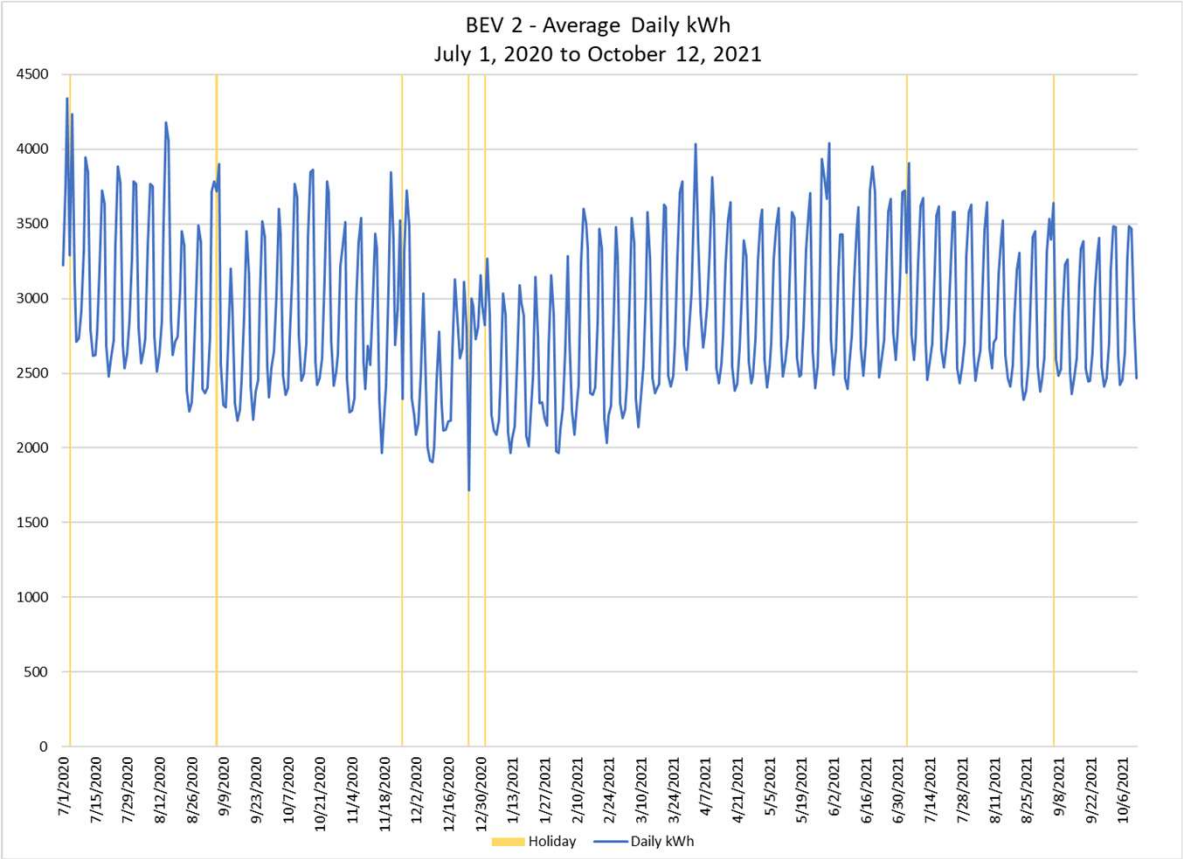
BEV1 Trend – the average is increasing



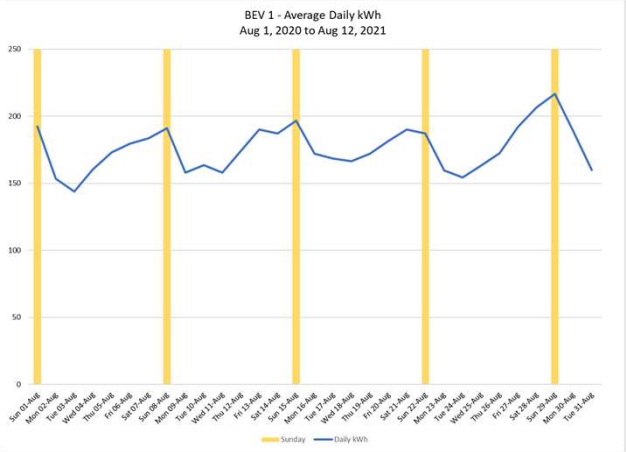
- Relatively new rate – it is possible that newcomers have a higher average
- Or people are driving more so they charge more often

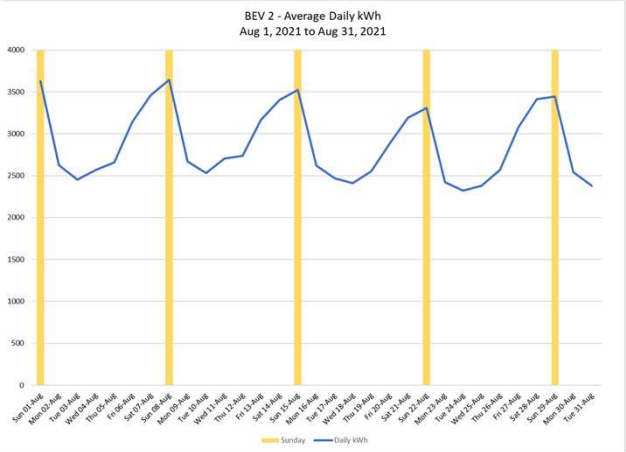
BEV2 Trend – definitely not increasing

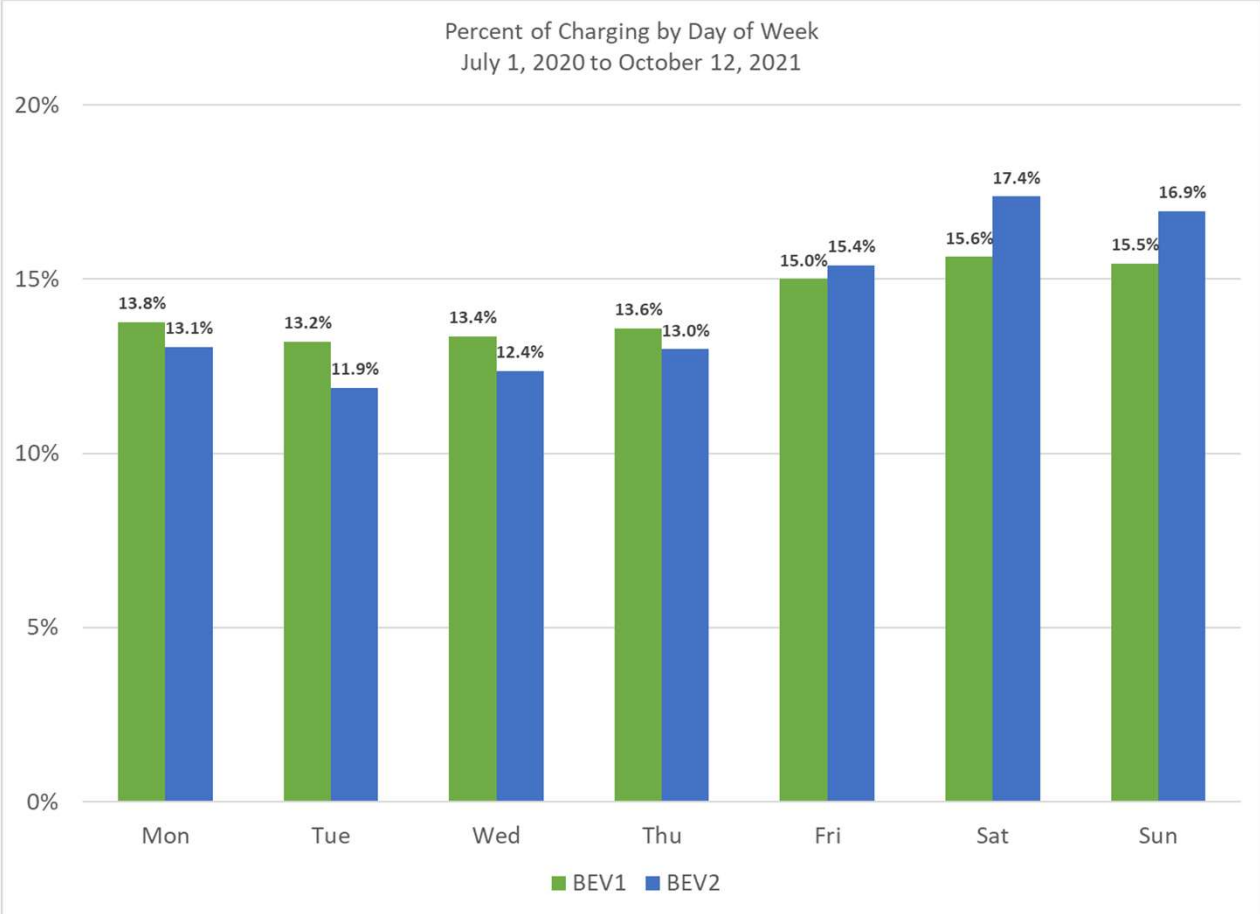
- Relatively new rate – it is possible that newcomers have a lower average
- Or vehicles that use this rate are charging less, so they use less energy
- (Yes, this is all speculation)
- More speculation: large VW settlement impact on this class may or may not have resulted in the addition of accounts with higher demands but lower use



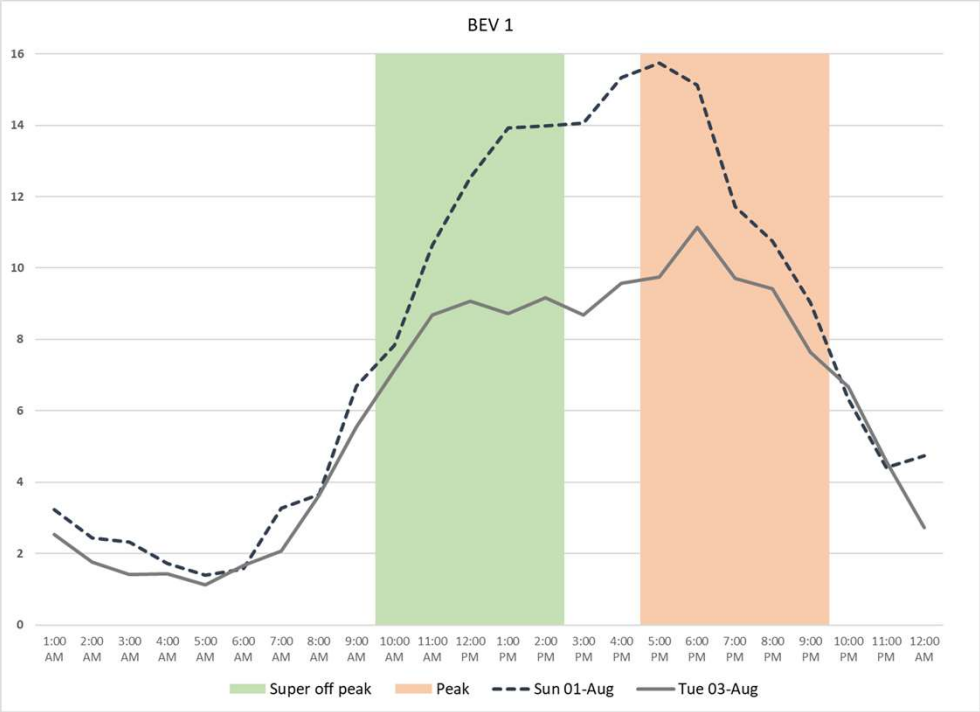
Day of the week – highest charging on weekends

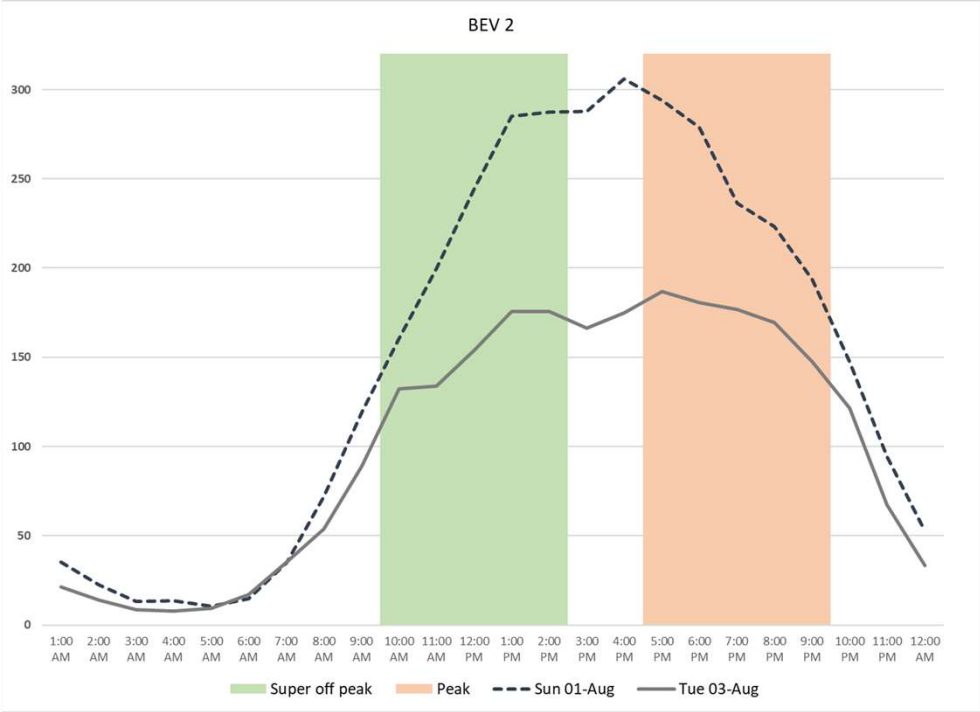




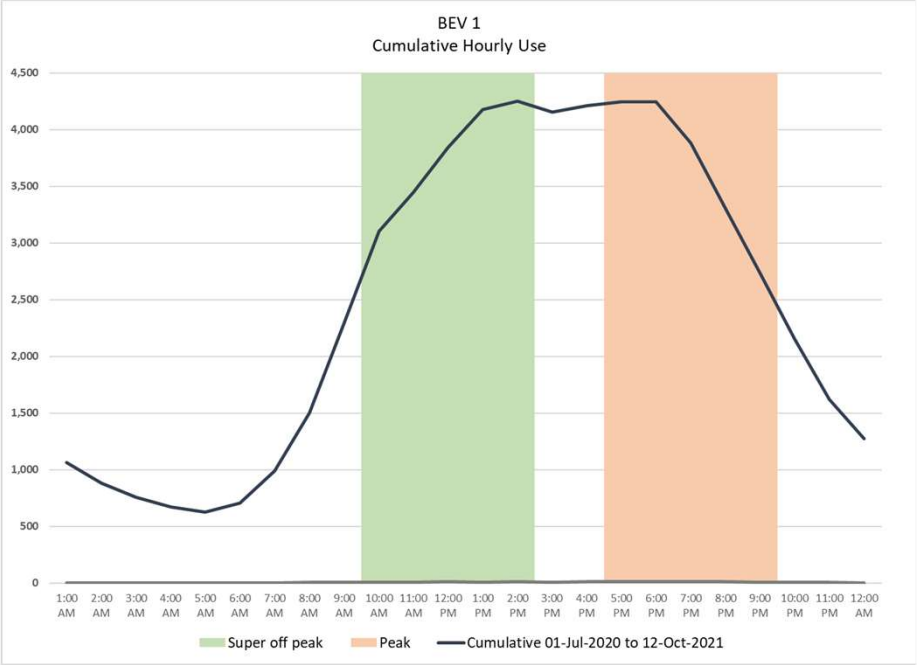


Do customers take advantage of the BEV rates?
Examples of daily load

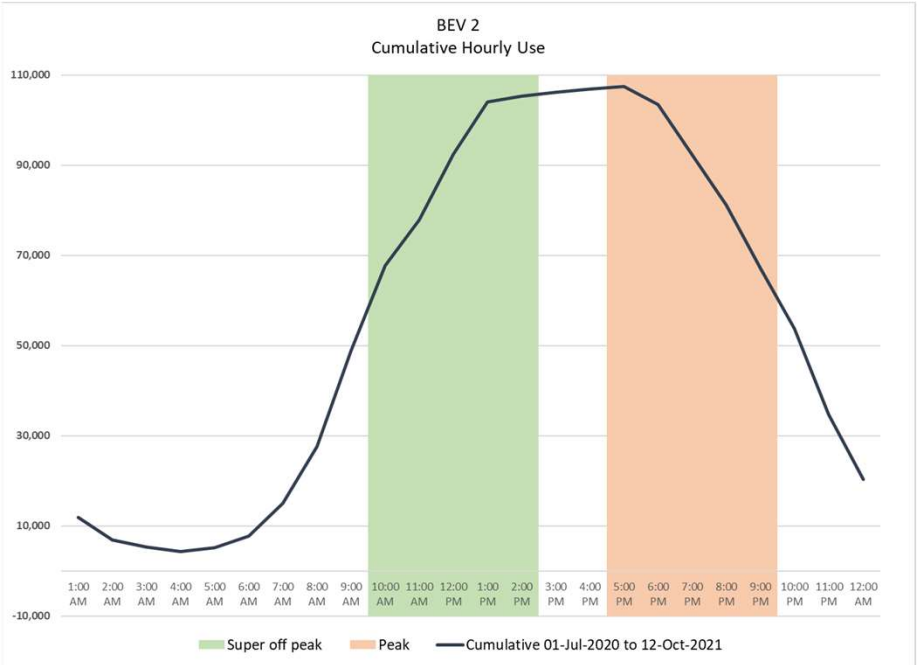




Do customers take advantage of the BEV rates?
16-month totals



- BEV1
  31% super off peak, 31% peak, 38% off peak



- BEV2
  33% super off peak, 33% peak, 34% off peak

What influences electric vehicle charging?
None of which was addressed in this presentation…

- Economic activity and electric vehicle adoption, of course
- Outdoor temperature
  - The vehicles use electricity to run the AC and the heat, resulting in lower miles per kWh
  - Battery charging is slightly more efficient at mild temperatures
  - We need to normalize EV load profiles to understand the effect of temperature on load profiles
- As customers build charging infrastructure, some points of service may be used less
- Demand charge sensitivity – some customers may prefer to run gas vehicles than go over their allotted demand charges
- And other factors…

DNV

WHEN TRUST MATTERS

Thank you!

Paula.Ham-Su@DNV.com
(262) 496-6951

www.dnv.com

DNV