



Forecasting DERs and their Impacts on Load

June 25, 2025



About Clean Power Alliance

- Largest Community Choice Aggregator (CCA) in California
- Serve Los Angeles & Ventura Counties
 - 3 million customers
- CPA is the fourth largest electricity provider in California
- #1 national ranking by NREL in the sale of green power for the second year in a row

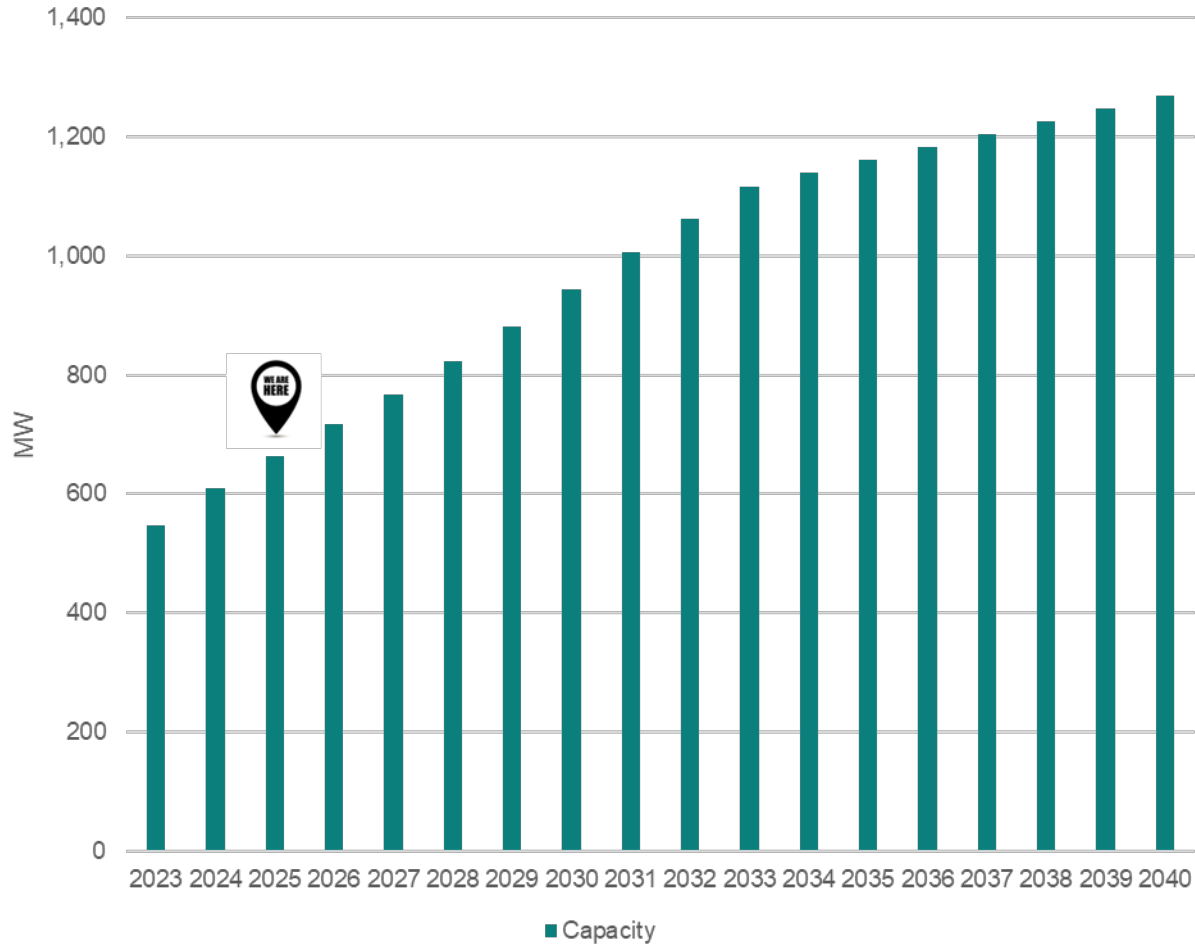


Foundational Terms & Notes

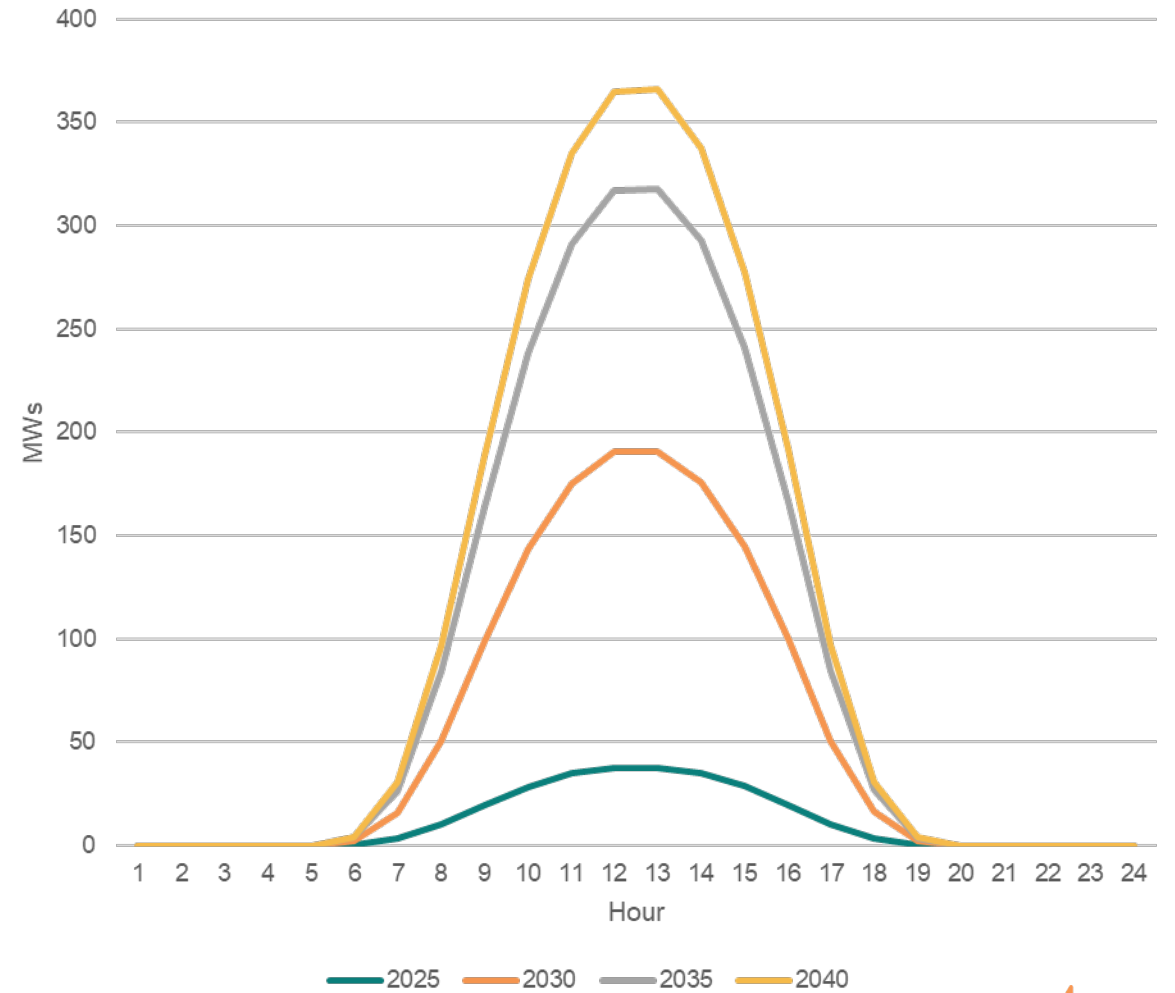
- **Distributed Energy Resources (DERs)**
 - Small-scale energy generation or storage technologies that are located close to where the energy is used
 - Electric battery storage systems, rooftop solar panels, smart thermostats to reduce power usage, energy efficiency measures, electric vehicles, heat pumps
- **Technology Discussed**
 - EV, PV, Storage, Electrification
- **Not meant for transmission/distribution planning or Real Time Forecasting**
- **All numbers and items discussed do not include recent federal events**



PV Forecast



Hourly Average PV Generation by Year

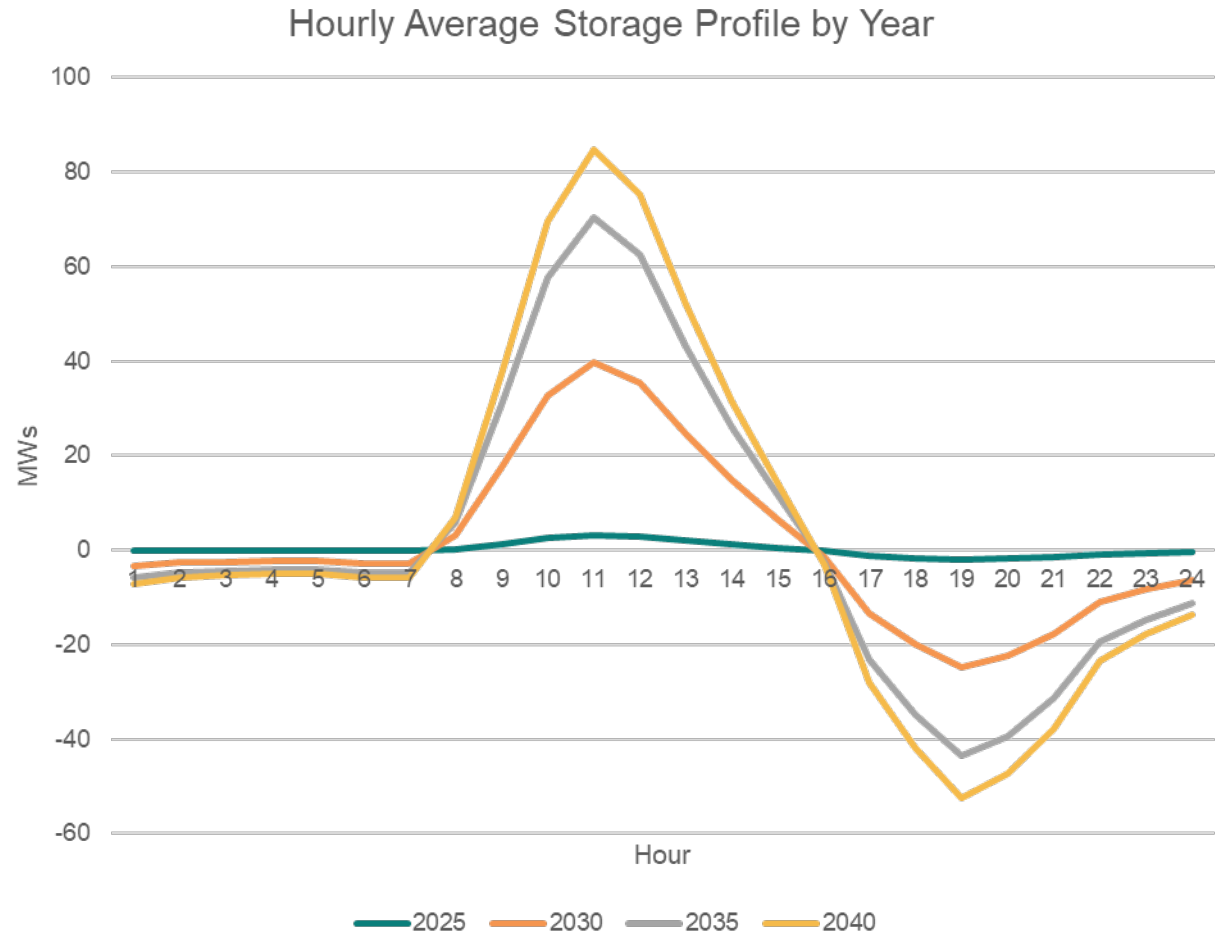
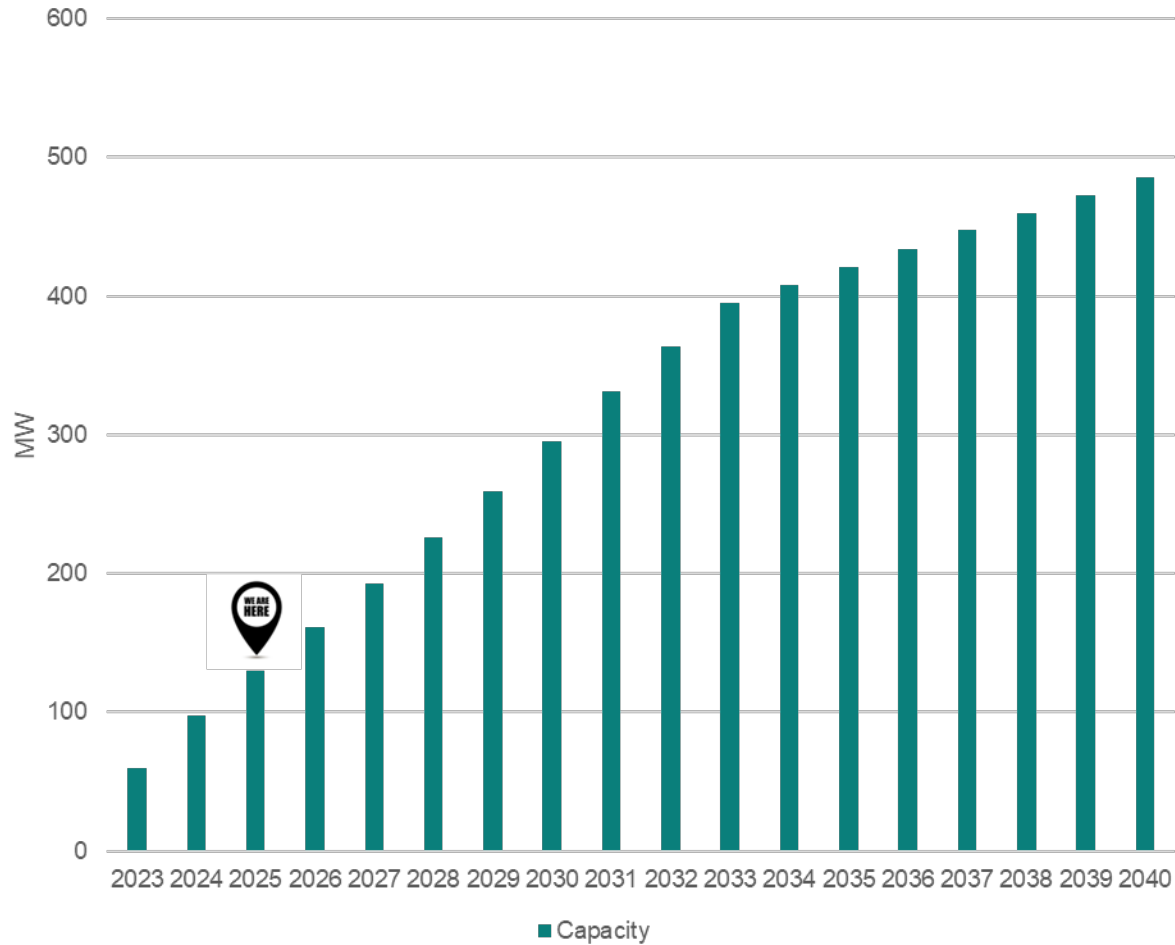


Storage

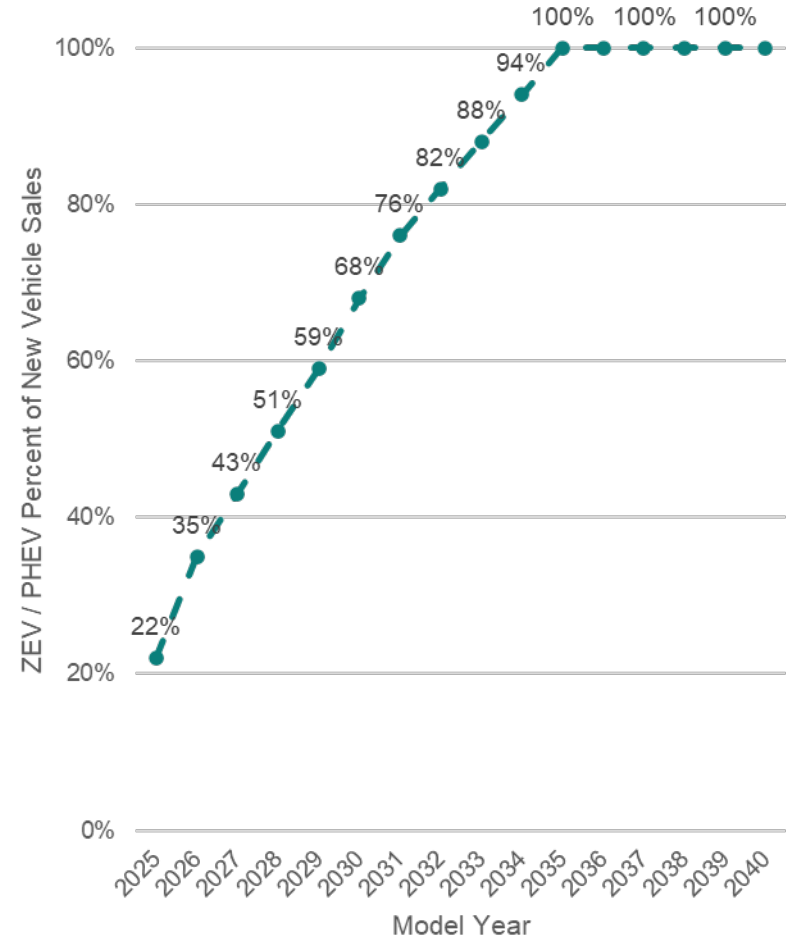
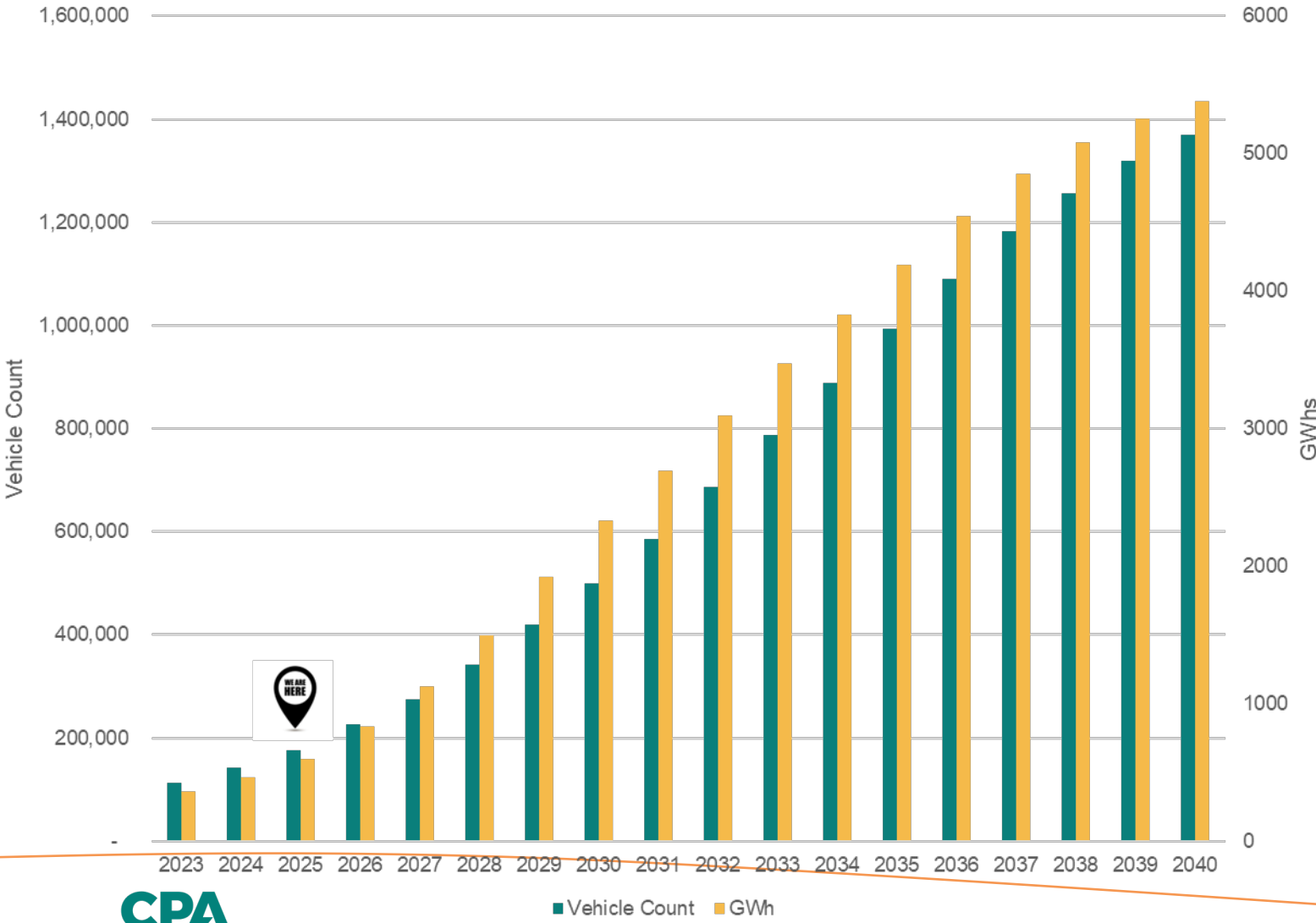
- Round Trip Fuel Efficiency : 84%
 - If a battery charges 2kWh turns to 1.68kWh dischargeable
- Users are not discharging to minimum state of charge
 - 25% compared to 15% industry average
- Mostly residential
 - Less hardware upgrades
- Storage installation is dependent on PV
 - Larger increase since Nem 3.0, excess solar cost avoidance not retail/wholesale price



Storage Forecast



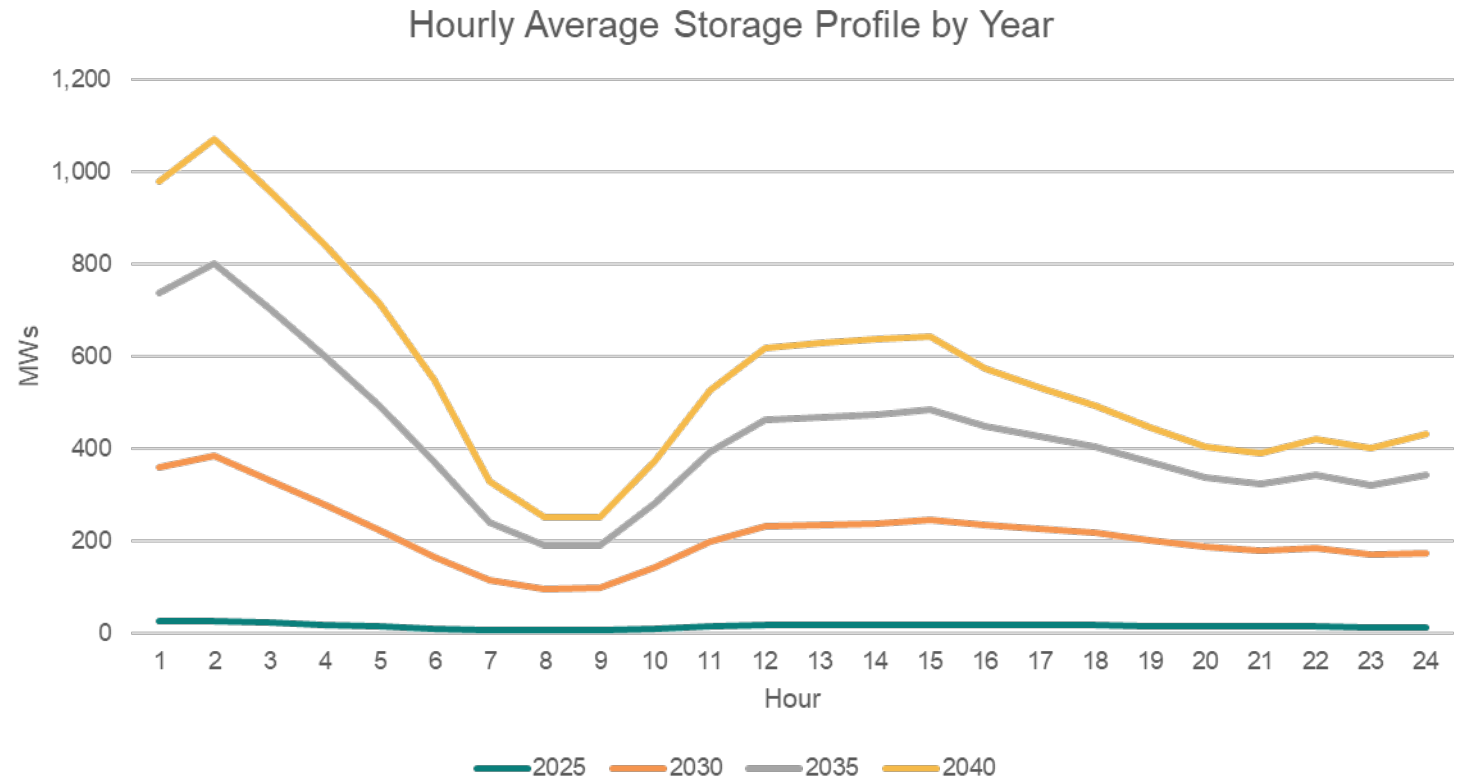
EV - Forecast



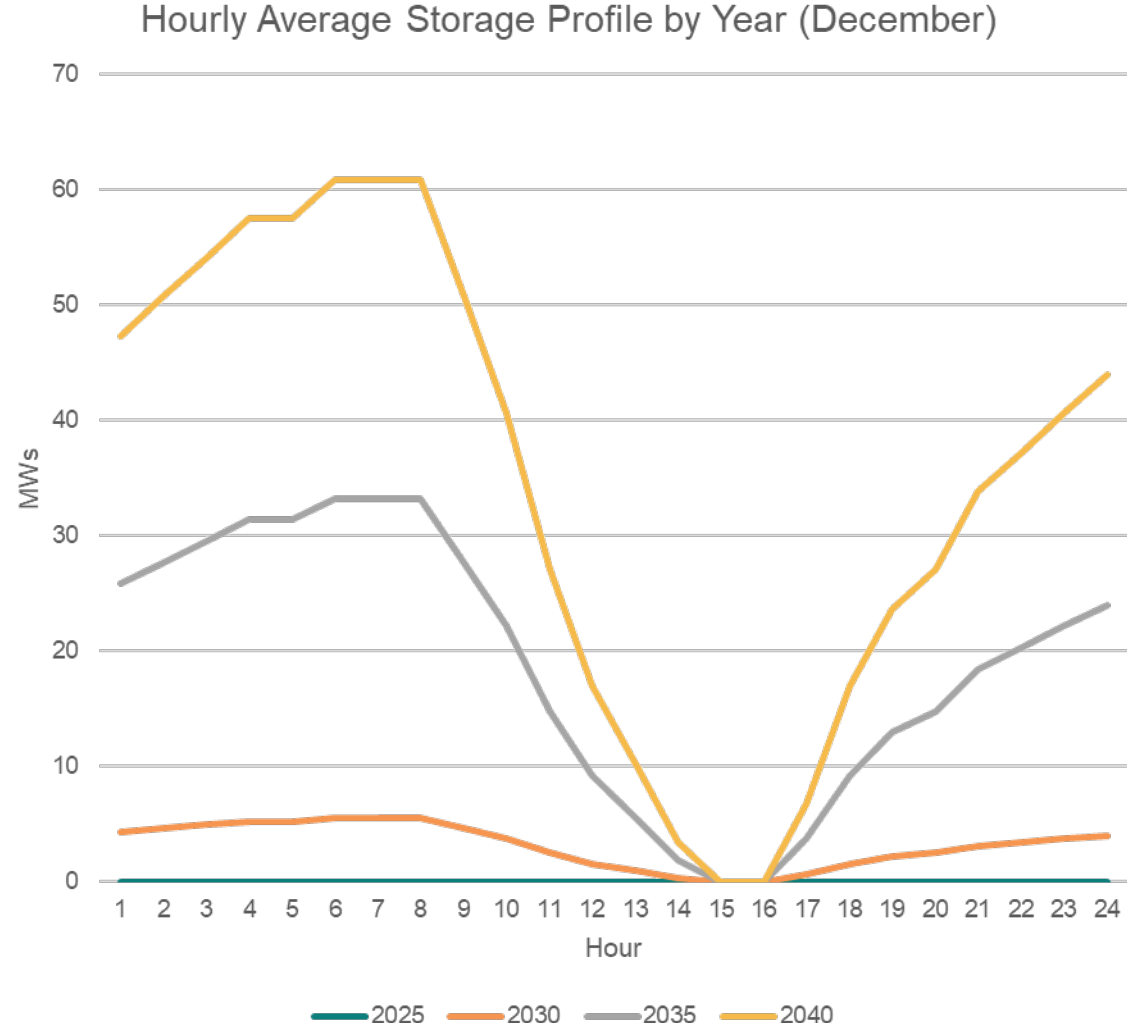
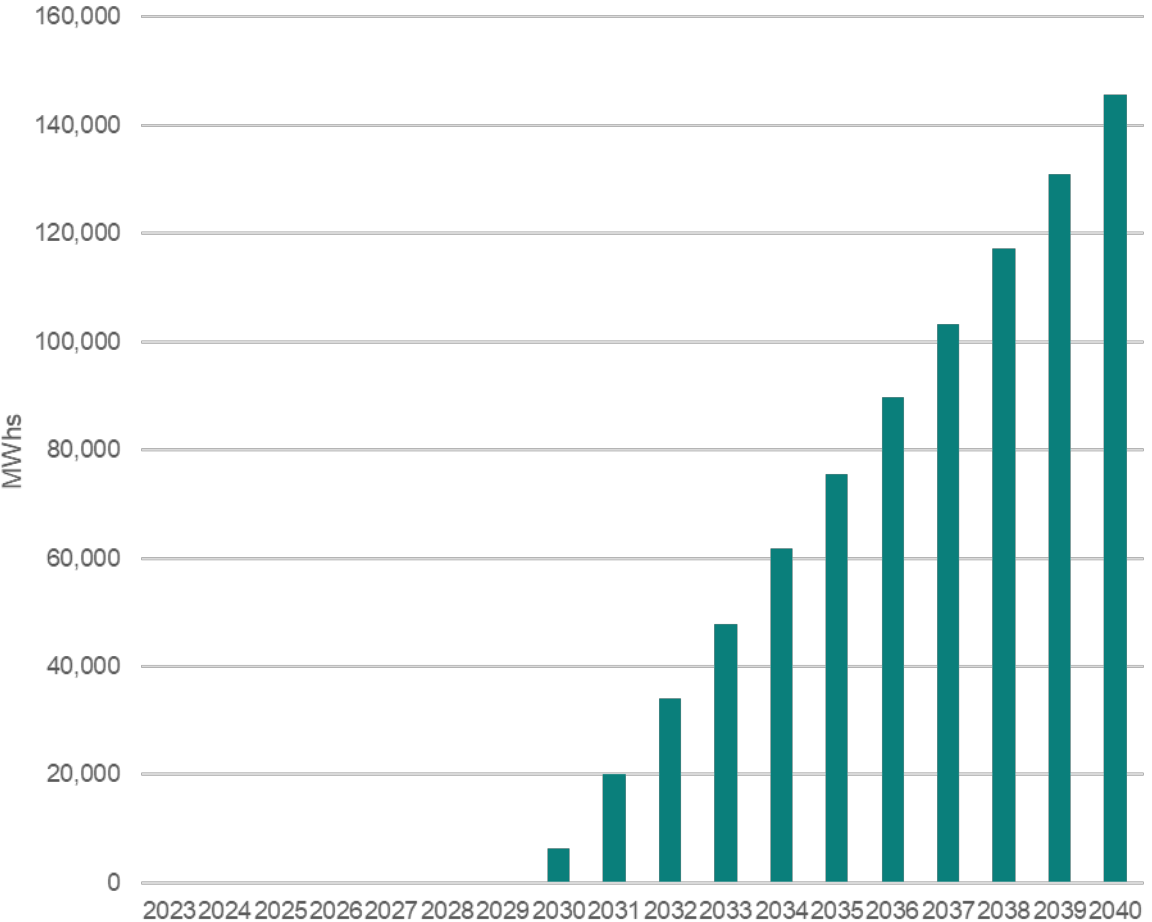
EV – Charging Behavior

- Stages of Charging Types

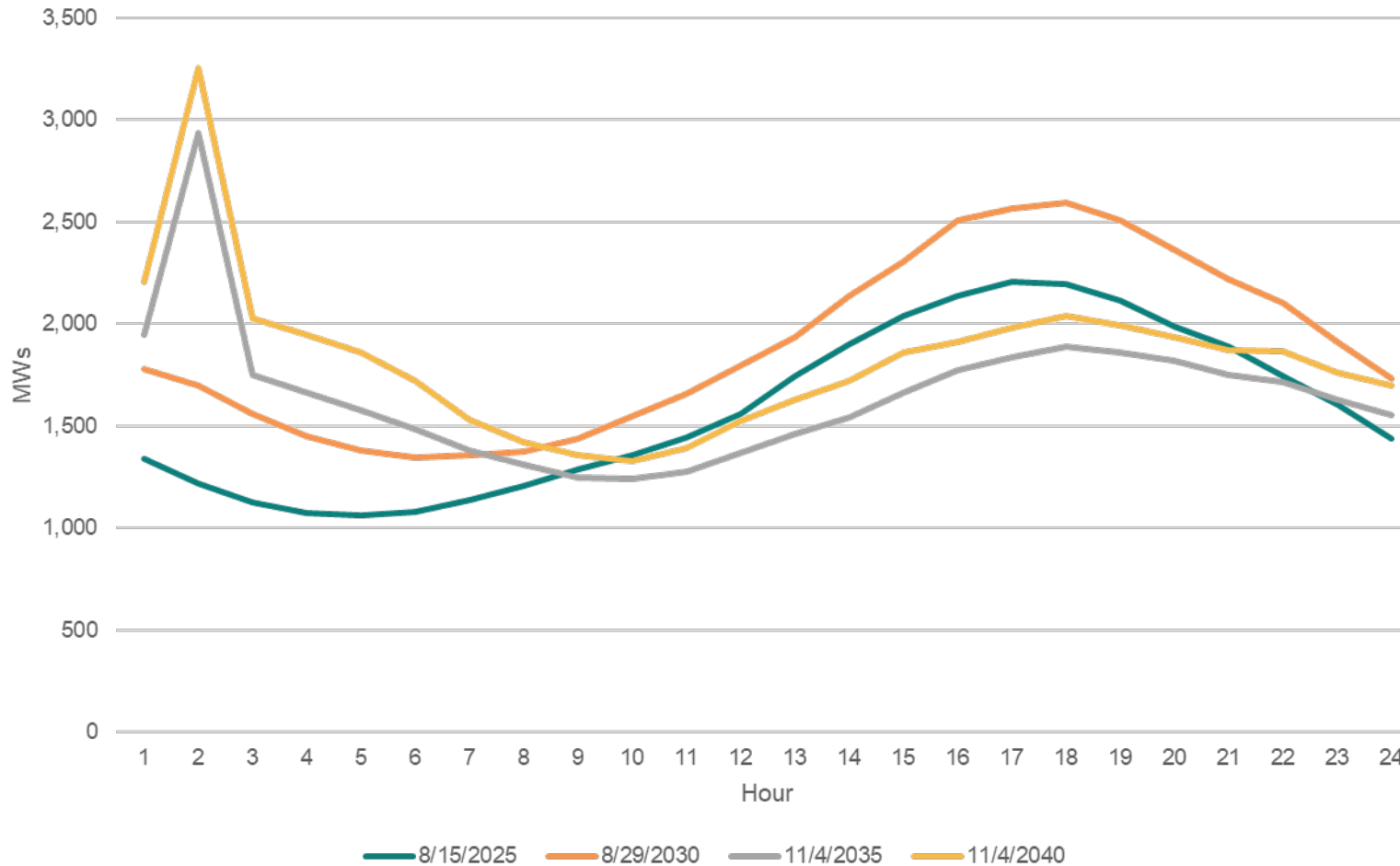
- 0-Unmanaged
- 1-Managed
- 2-Smart
- 3-Smart Solar
- 4-V2X



Electrification Forecast



Peak Day Impact



- The yearly peak day will shift from **summer to winter**
- The yearly peak hour will shift from **evening to overnight**
- The new yearly peak will be **higher** than the current peak

