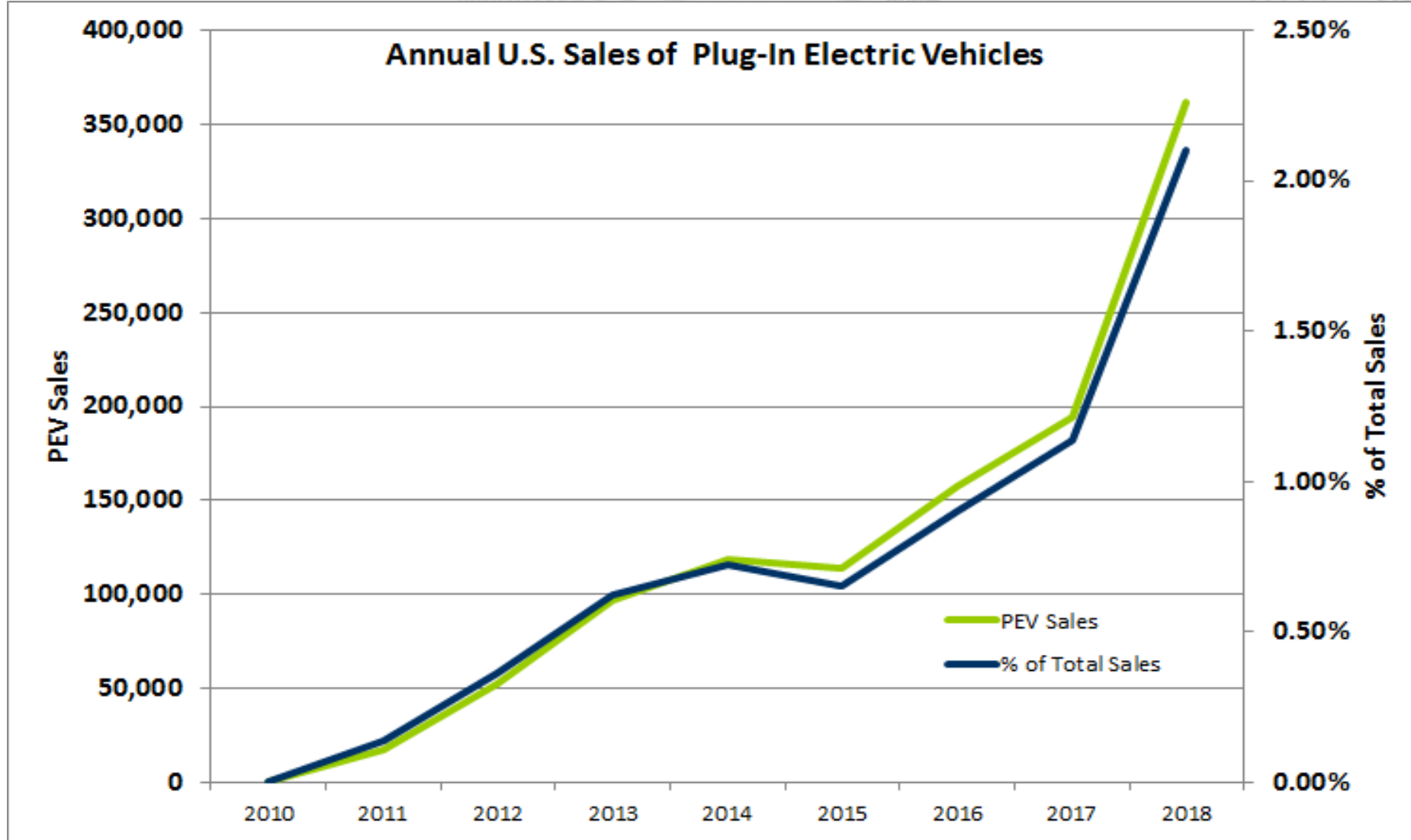




# Plug-In Vehicle Load Forecast

John Reynolds  
Load Analysis Subcommittee  
August 6, 2019

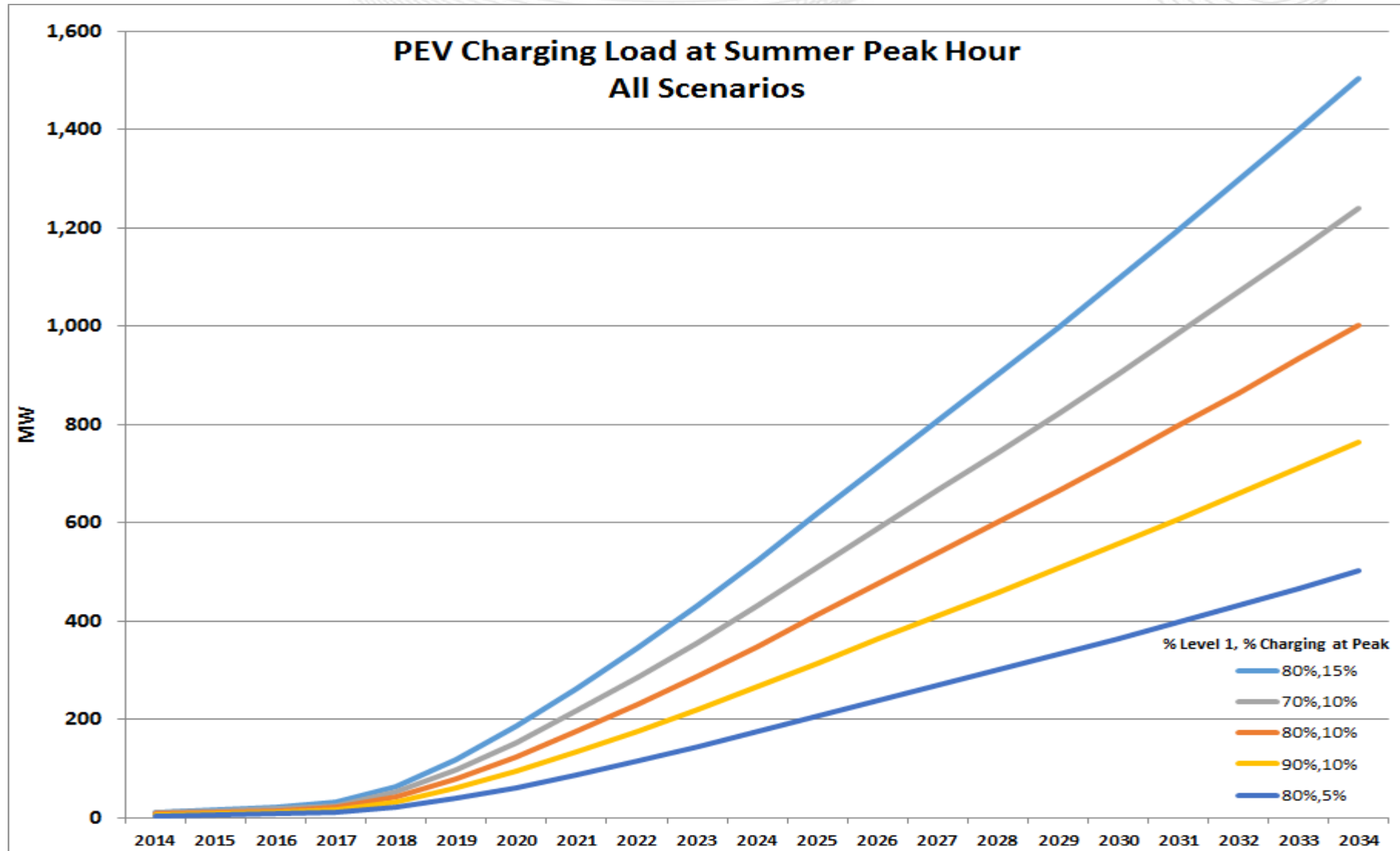


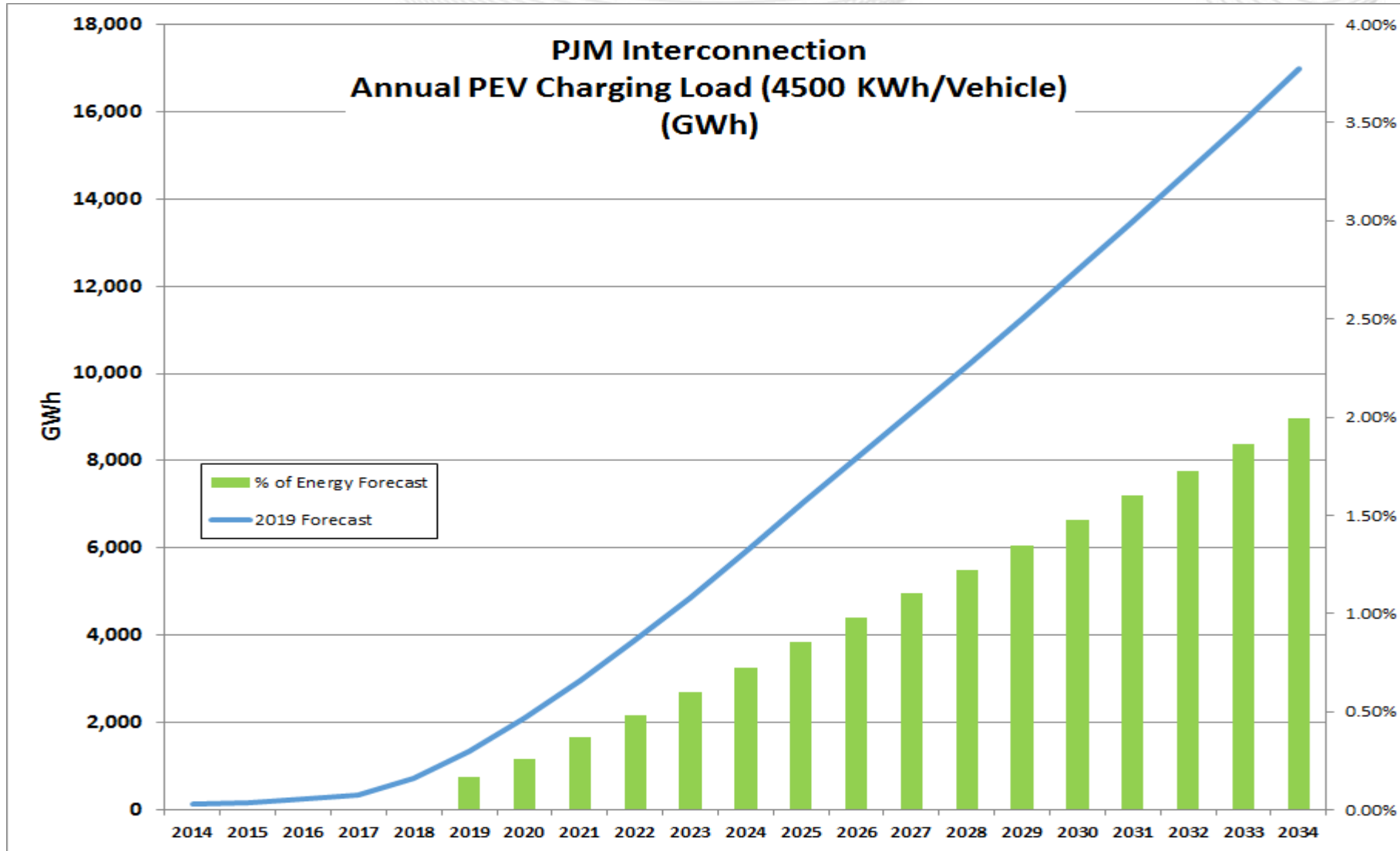
Derive an estimate of PEV **load at peak** from:

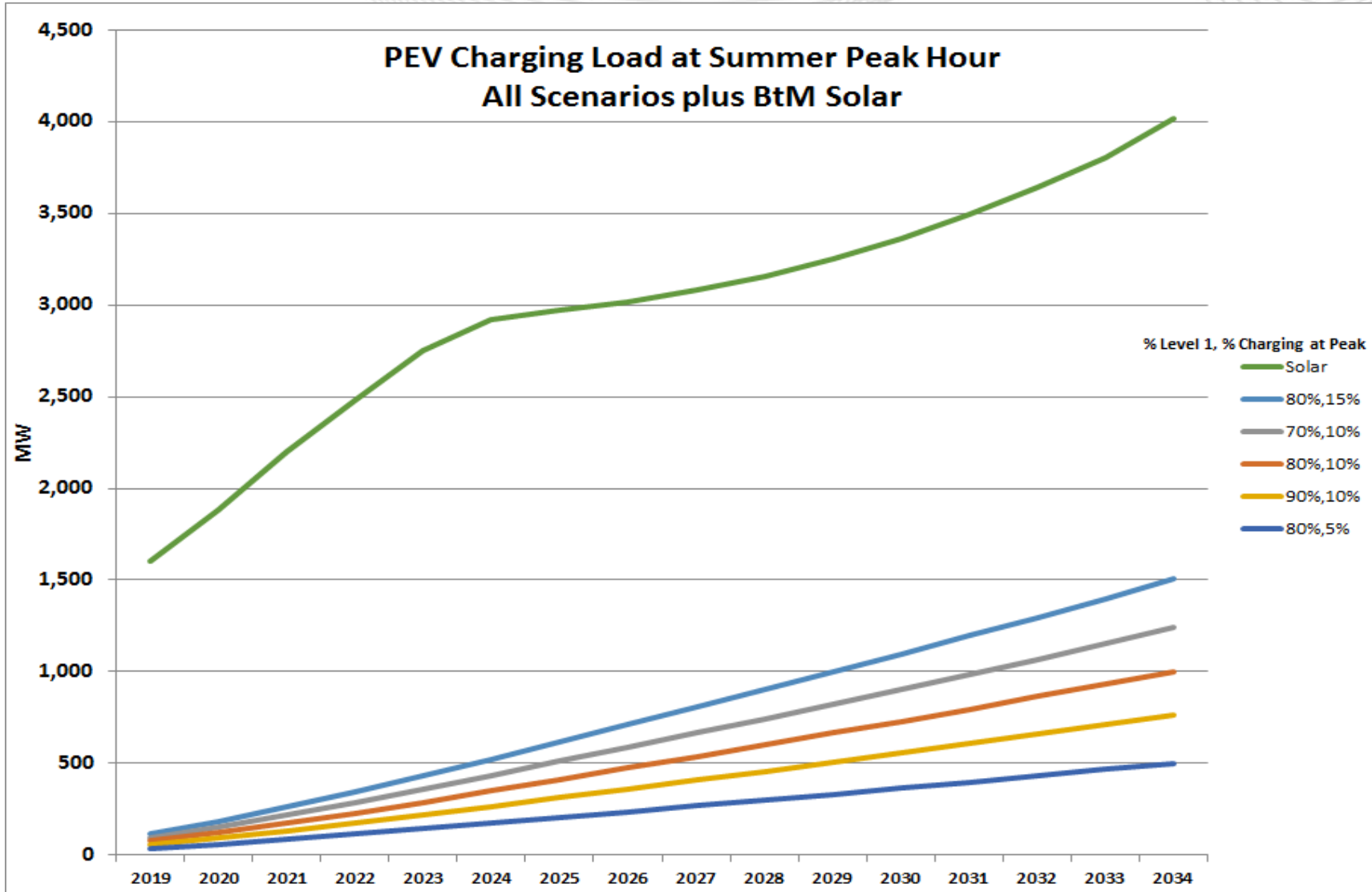
- Registered PEVs by state - [Office of Energy Efficiency & Renewable Energy](#)
- Forecasted PEV sales by census region - [EIA Annual Energy Outlook](#)
- PJM share of state population – [Census Bureau](#)
- Vehicle retirement rate - [Jacobsen, Mark R., and Arthur A. van Benthem. 2015. "Vehicle Scrappage and Gasoline Policy." \*American Economic Review\*, 105 \(3\): 1312-38.](#)
- Prevalence of Level 1 (1.4 kW) (80%) vs Level 2 (7.7 kW) (20%) charging
- Prevalence of PEV charging at HE17 (10%)

Estimated from literature review

Derive an estimate of PEV **annual energy** at 4,500 kWh per vehicle

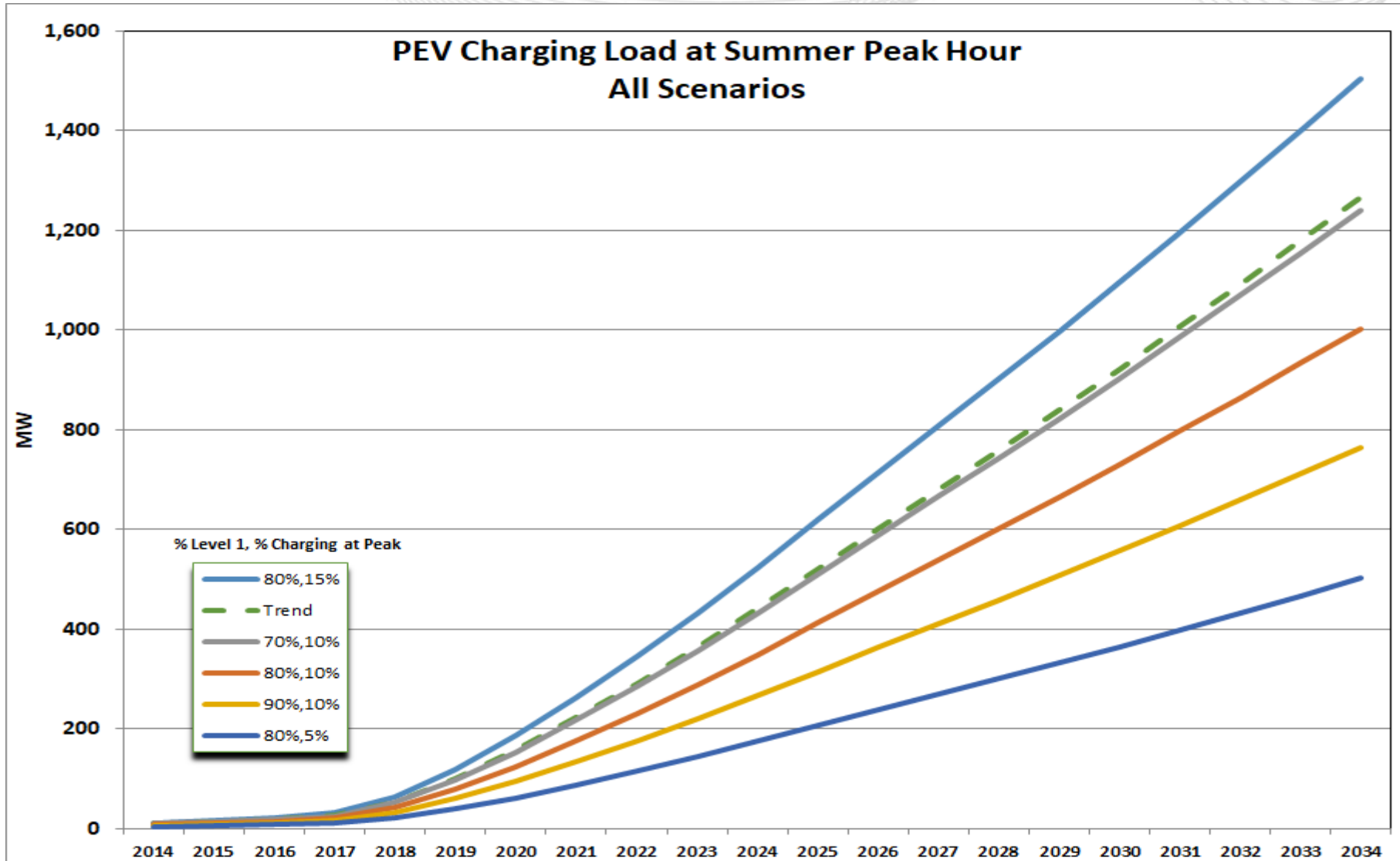




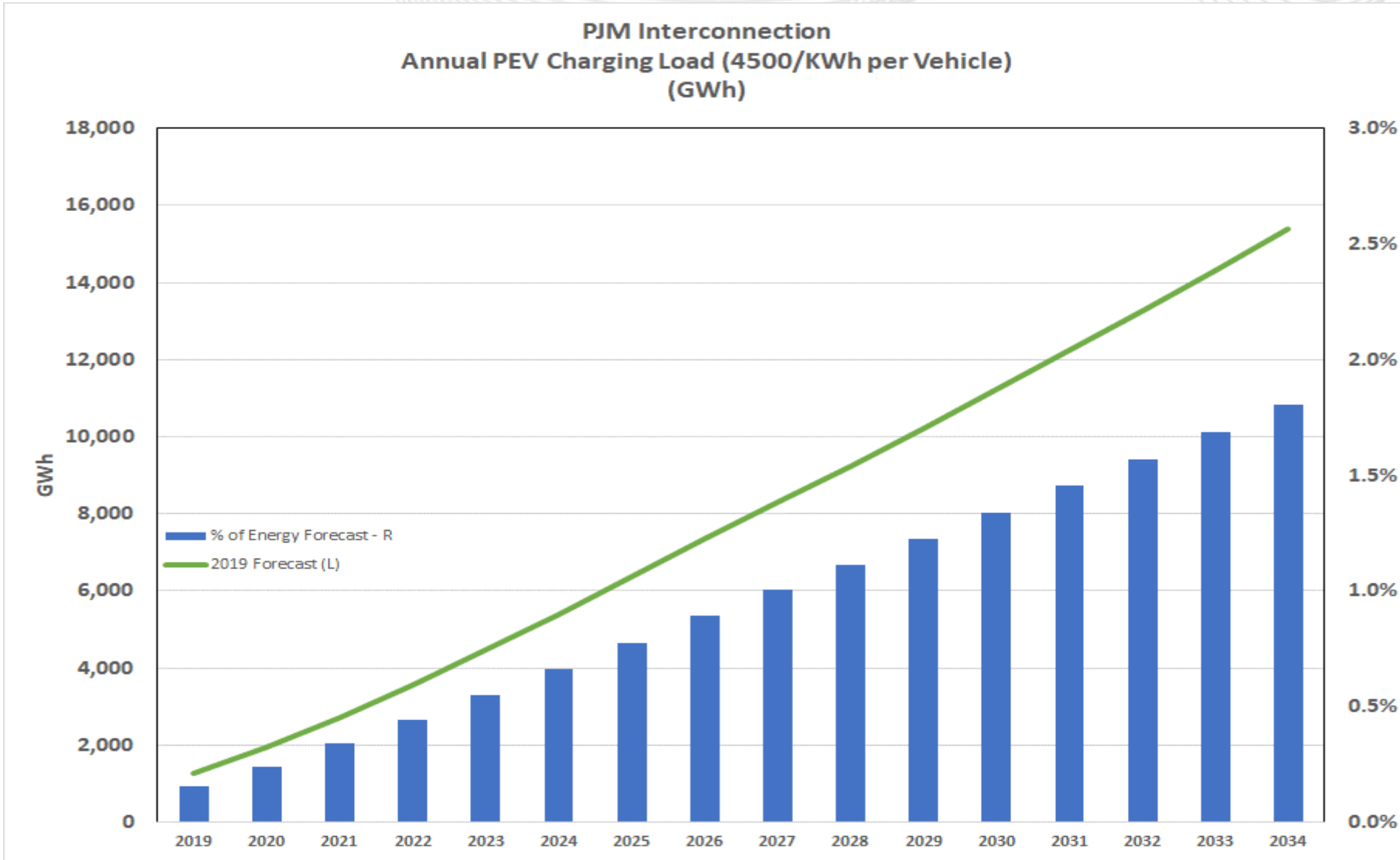


Derive an estimate of PEV **load at peak** from:

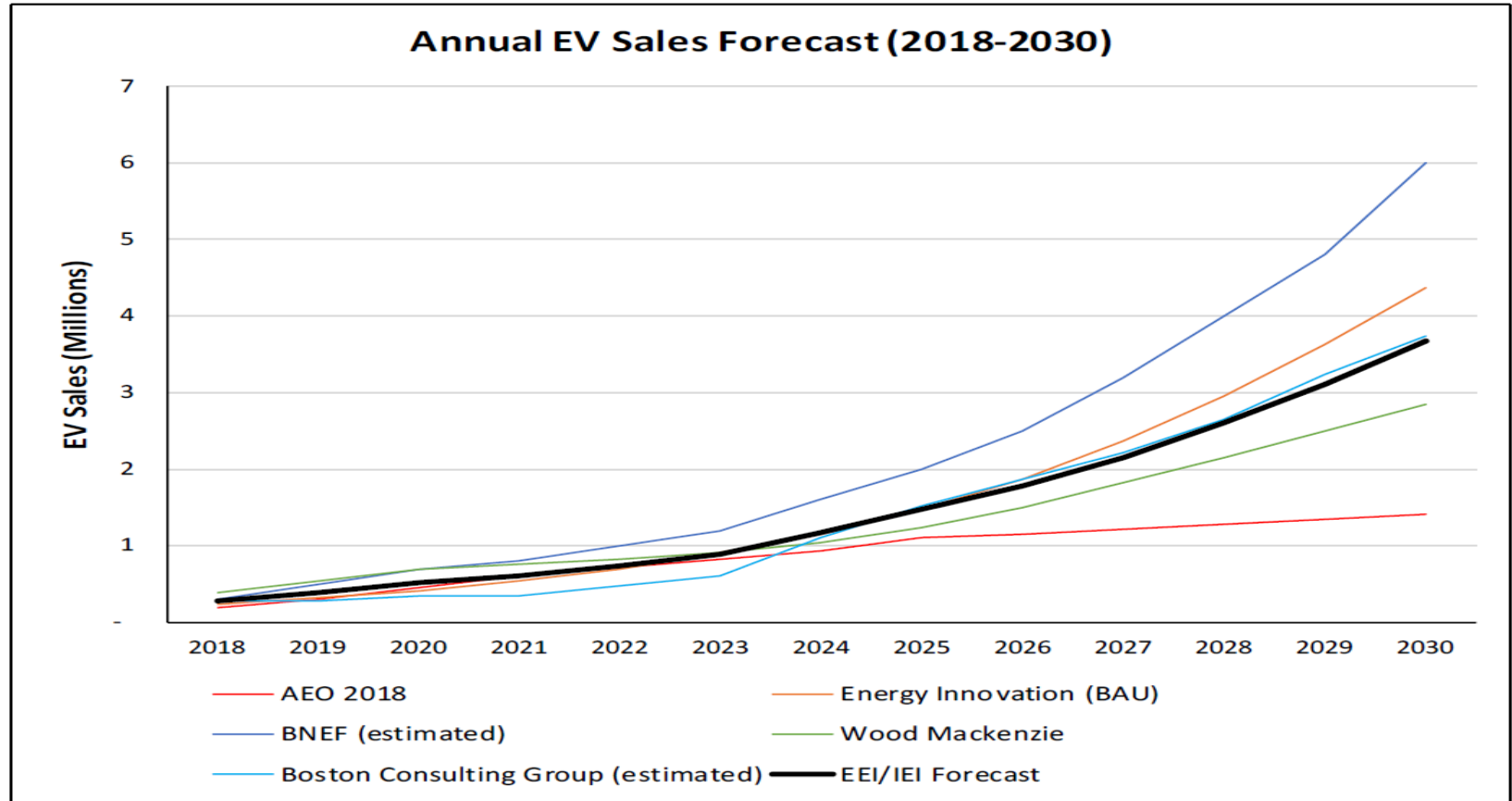
- Registered PEVs by state - [Office of Energy Efficiency & Renewable Energy](#)
- Forecasted PEV sales by census division - [EIA Annual Energy Outlook](#)
- State share of census division registrations – **PJM calculation**
- Vehicle retirement rate - [Jacobsen, Mark R., and Arthur A. van Benthem. 2015. "Vehicle Scrappage and Gasoline Policy." \*American Economic Review\*, 105 \(3\): 1312-38.](#)
- Charging:
  - Prevalence of Level 1 (1.4 kW) - **trend from 80% to 0% by 2030**
  - Prevalence of charging at peak - **trend from 15% to 5% by 2030**







- Zone Impact: Forecasts have only been produced for states; need estimates at zone level.
- Forecasts only cover light duty vehicles, not large trucks, busses, or rail.
- Alternate Sales Forecasts:



Source: EEI, Electric Vehicle Sales Forecast and the Charging Infrastructure Required Through 2030, November 2018