Plug-In Vehicle Load Forecast

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PJM’s Initial Approach

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

- Prevalence of Level 1 (1.4 kW) (80%) vs Level 2 (7.7 kW) (20%) charging
- Prevalence of PEV charging at HE17 (10%)

Derive an estimate of PEV annual energy at 4,500 kWh per vehicle
PEV vs. Solar

PEV Charging Load at Summer Peak Hour
All Scenarios plus BtM Solar

% Level 1 % Charging at Peak
- Solar
- 80%, 15%
- 70%, 10%
- 80%, 10%
- 90%, 10%
- 80%, 5%

MW

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034
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

- 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
Revised Forecast – Peak

PEV Charging Load at Summer Peak Hour
All Scenarios
Revised Forecast - Energy

PJM Interconnection
Annual PEV Charging Load (4500 KWh per Vehicle)
(GWh)
To-Do/Future Considerations

- 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