

DOCKETED	
Docket Number:	25-IEPR-03
Project Title:	Electricity and Gas Demand Forecast
TN #:	267168
Document Title:	Presentation - Draft Transportation Energy Demand Forecast for the 2025 Integrated Energy Policy Report
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Filer:	Raquel Kravitz
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	11/12/2025 11:10:32 AM
Docketed Date:	11/12/2025



Draft Transportation Energy Demand Forecast for the 2025 Integrated Energy Policy Report

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November 13, 2025



Acronyms and Initialisms

AATE – Additional Achievable Transportation Electrification

CAISO – California Independent System Operator

CEC – California Energy Commission

DCFC – Direct Current Fast Charging

EV – Electric Vehicle (plug-in)

GWh – Gigawatt-hour

IEPR – Integrated Energy Policy Report

L2 – Level 2 electric vehicle charging

LD – Light-Duty

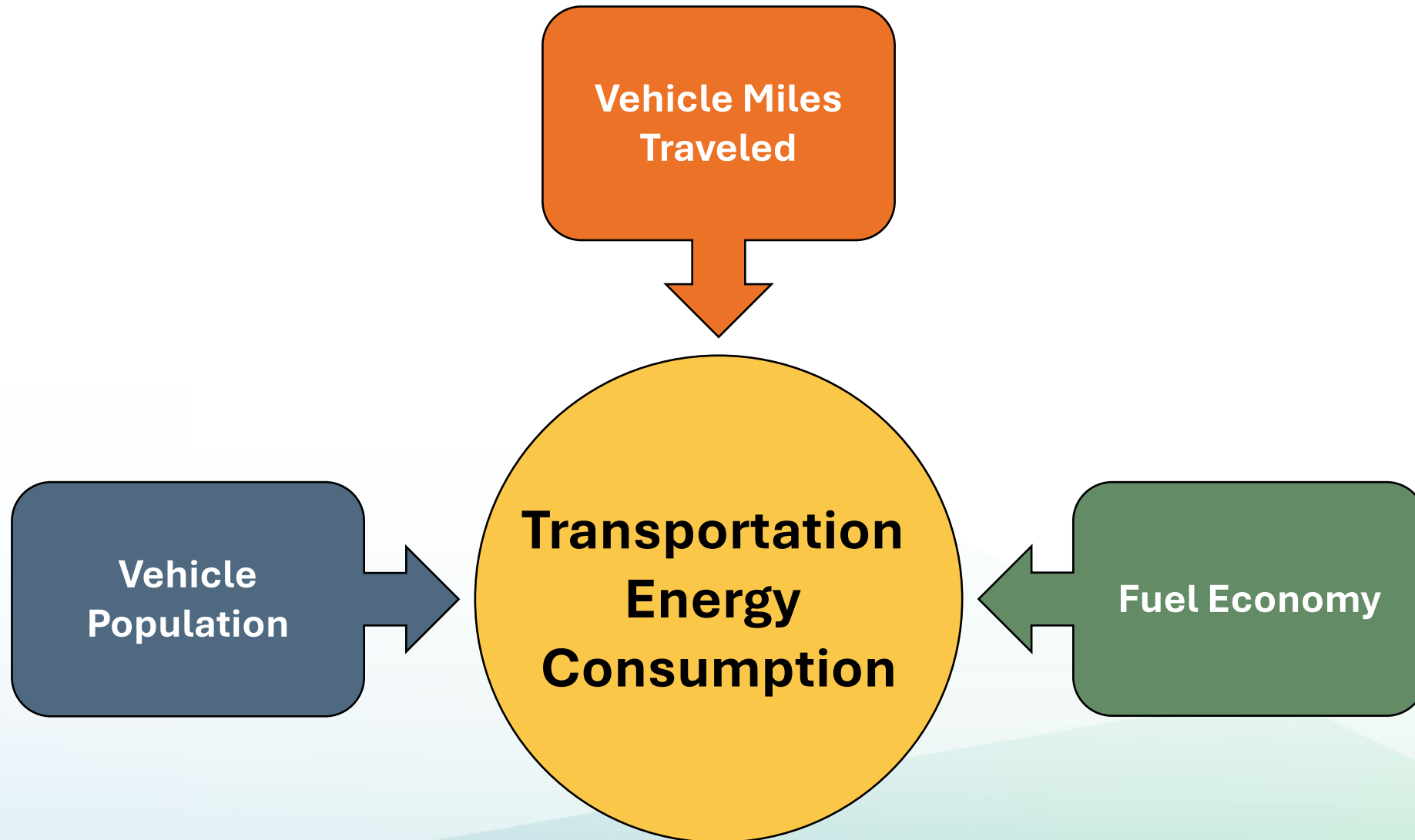
MDHD – Medium- and Heavy-Duty

ZEV – Zero-Emission Vehicle

Note: All charts, diagrams, and graphics, unless otherwise indicated, were developed by CEC staff.



Transportation Energy Consumption





Transportation Electrification Scenarios

- **Baseline Forecast** of vehicle and energy demand based on continuing economic and market trends, as well as existing policies
- **Additional Achievable Transportation Electrification (AATE) Scenarios** incorporate some baseline patterns but integrate policies or market transformations that existing demand-side models cannot typically model
- **AATE Scenarios** post-process new sales proportions or population proportions by vehicle fuel type
 - Existing regulations, future regulations, or potential market transformations
 - Within the bounds of “reasonably expected to occur”



Additional Achievable Transportation Electrification Scenarios

AATE 2

Accounts for uncertainty in policy/regulatory areas that may lead to increased but moderate growth

AATE 3

Based on recent policies and can be used to guide utility infrastructure investments and resource planning

AATE 4

Incorporates a high-end projection of the number of vehicles that would support California's ZEV policy goals

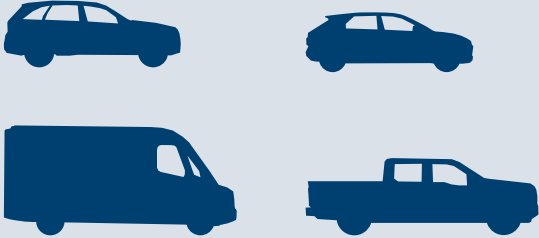


Draft 2025 IEPR Forecast Transportation Electrification Scenarios

		EV Growth Rates	
Potential Forecast Case	Scenario	Light-Duty	Medium- and Heavy-Duty
Baseline	Baseline	Baseline	Baseline
TBD	AATE 2	Moderate Growth	Baseline
Planning Scenario	AATE 3	High Growth	Baseline
Local Reliability Scenario	AATE 4	High Growth	High Growth

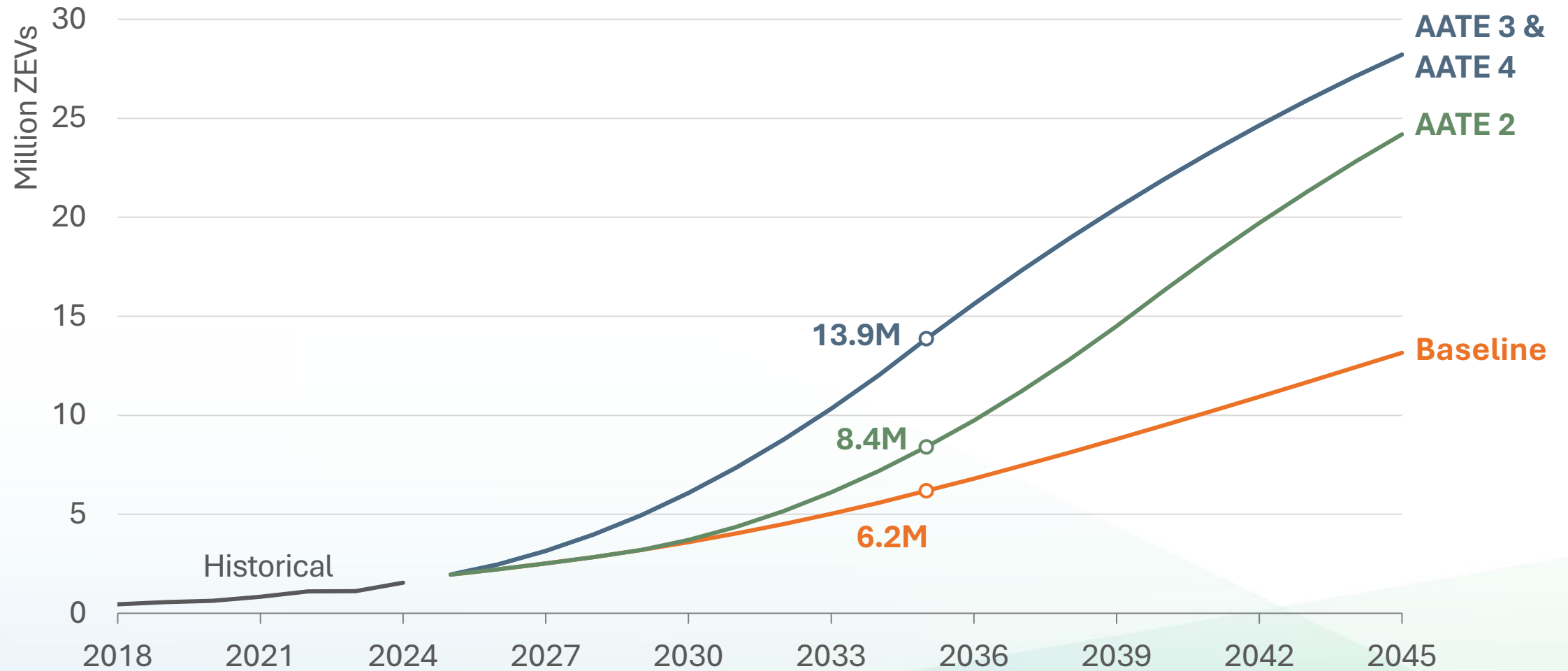


2025 IEPR LD Model Updates

Light-Duty Models	Baseline Scenario	AATE Scenarios 2, 3, and 4
<p>Class 1 – 2b Vehicles</p> 	<ul style="list-style-type: none">Standard Updates and Calibration: Economic, Demographic, Vehicle PopulationRevised fuel price forecastElimination of federal tax credit	<ul style="list-style-type: none">New moderate and high battery-electric vehicle growth scenarios, to reflect policy uncertainty



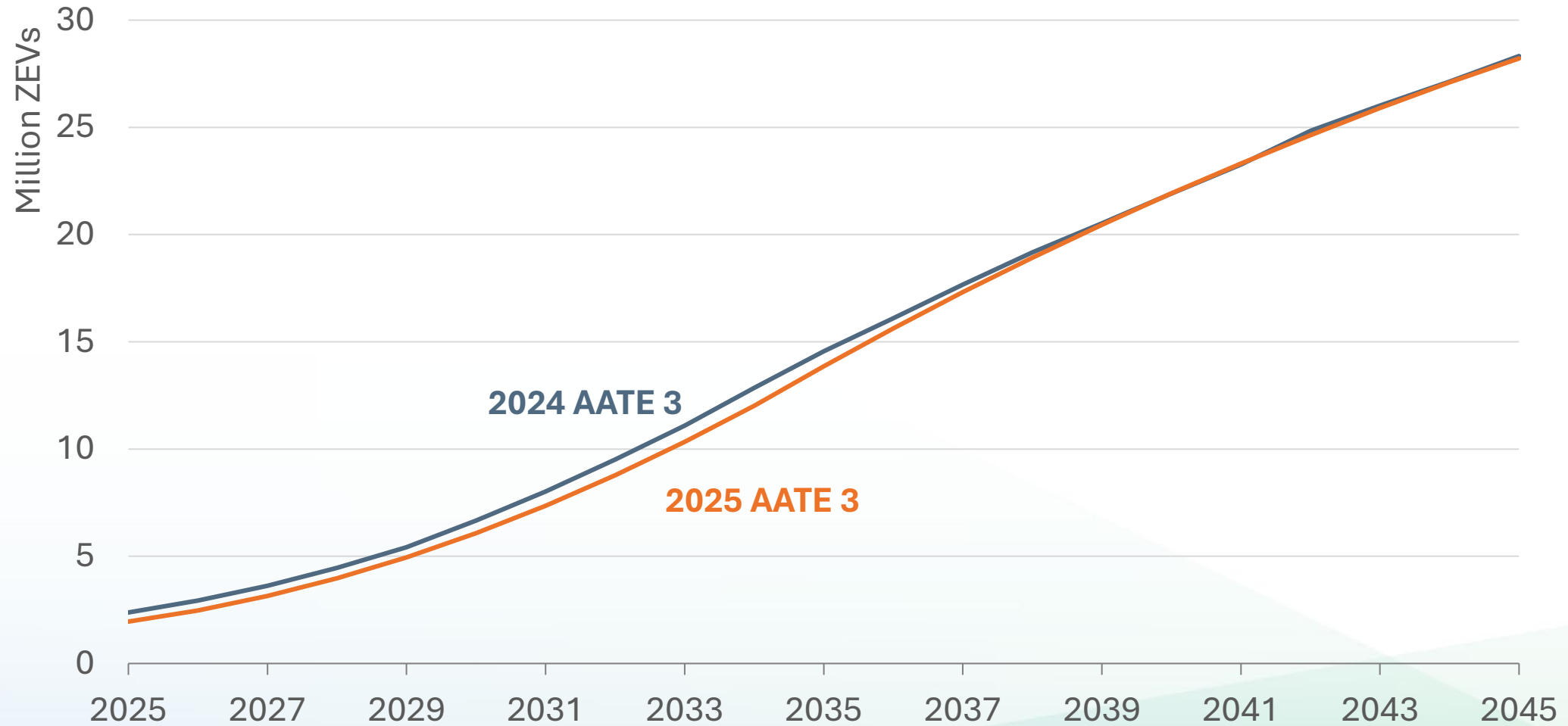
2025 IEPR LD ZEV Population Forecast



Note: AATE 3 and AATE 4 for LD ZEVs are identical, so only one line is shown

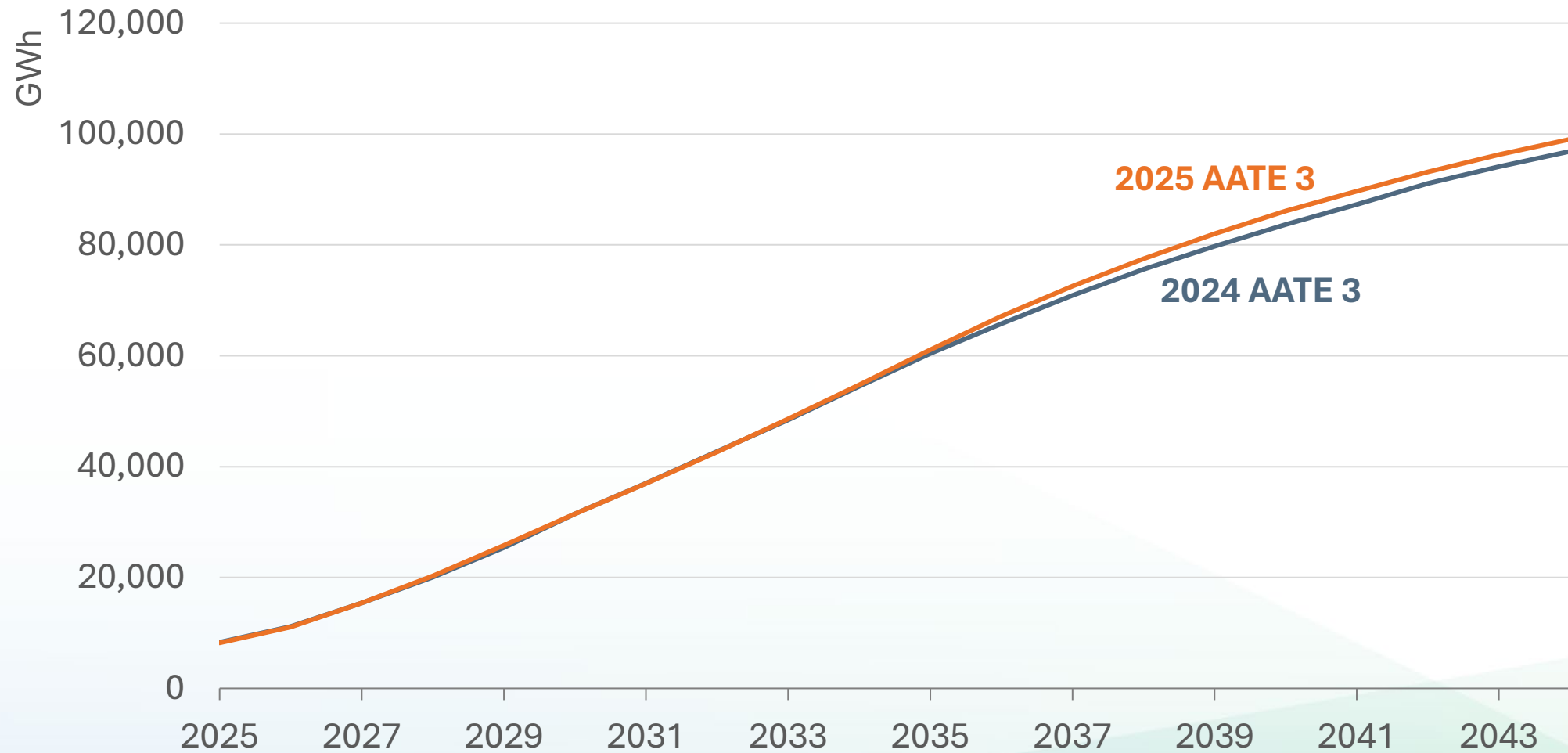


LD ZEV Population Comparison of Previous AATE 3 Forecasts



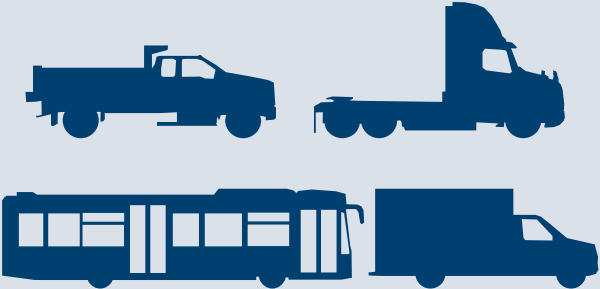


LD AATE 3 Electricity Demand



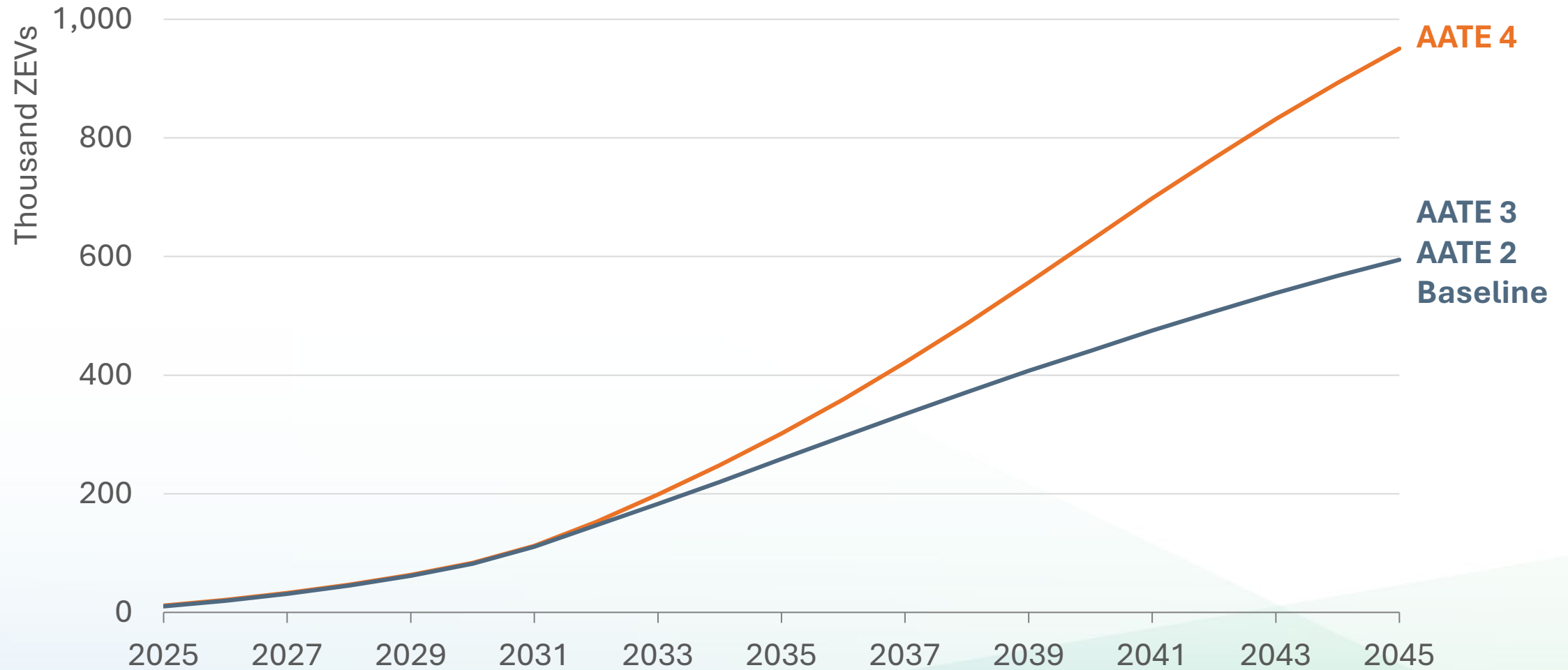


2025 IEPR MDHD Model Updates

Medium- and Heavy-Duty Models	Baseline Scenario	AATE Scenario 4
<p>Class 3 – 8 Vehicles</p> 	<ul style="list-style-type: none">Standard Updates and Calibration: Economic, Vehicle PopulationUpdated Vehicle AvailabilityRevised fuel price forecastElimination of federal tax credit	<ul style="list-style-type: none">New high-growth ZEV scenario, to reflect policy and market uncertaintyCalibrated to linear electrification adoption curve starting from 2031, reaching saturation in 2040



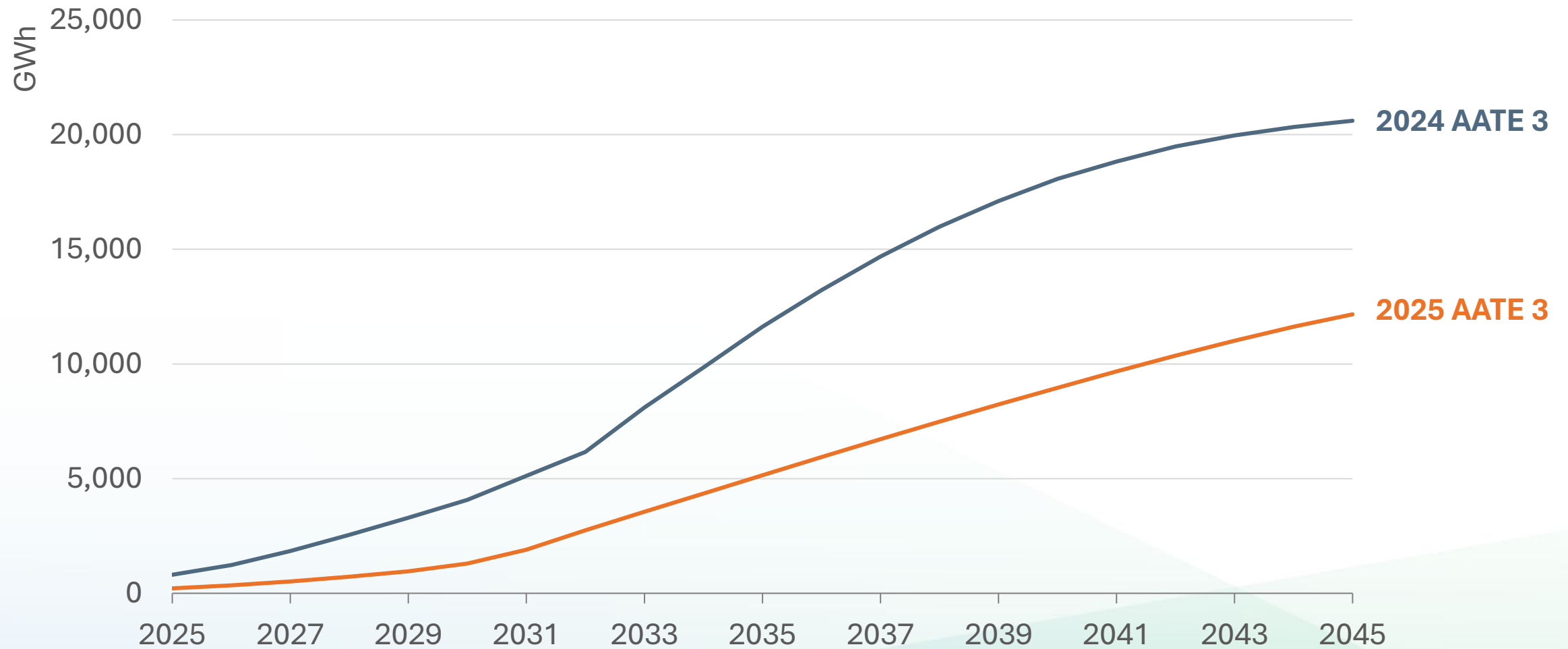
2025 IEPR MDHD On-Road Freight EV Stock Forecast



Note: Baseline, AATE 2, and AATE 3 for MDHD EVs are identical, so only one line is shown

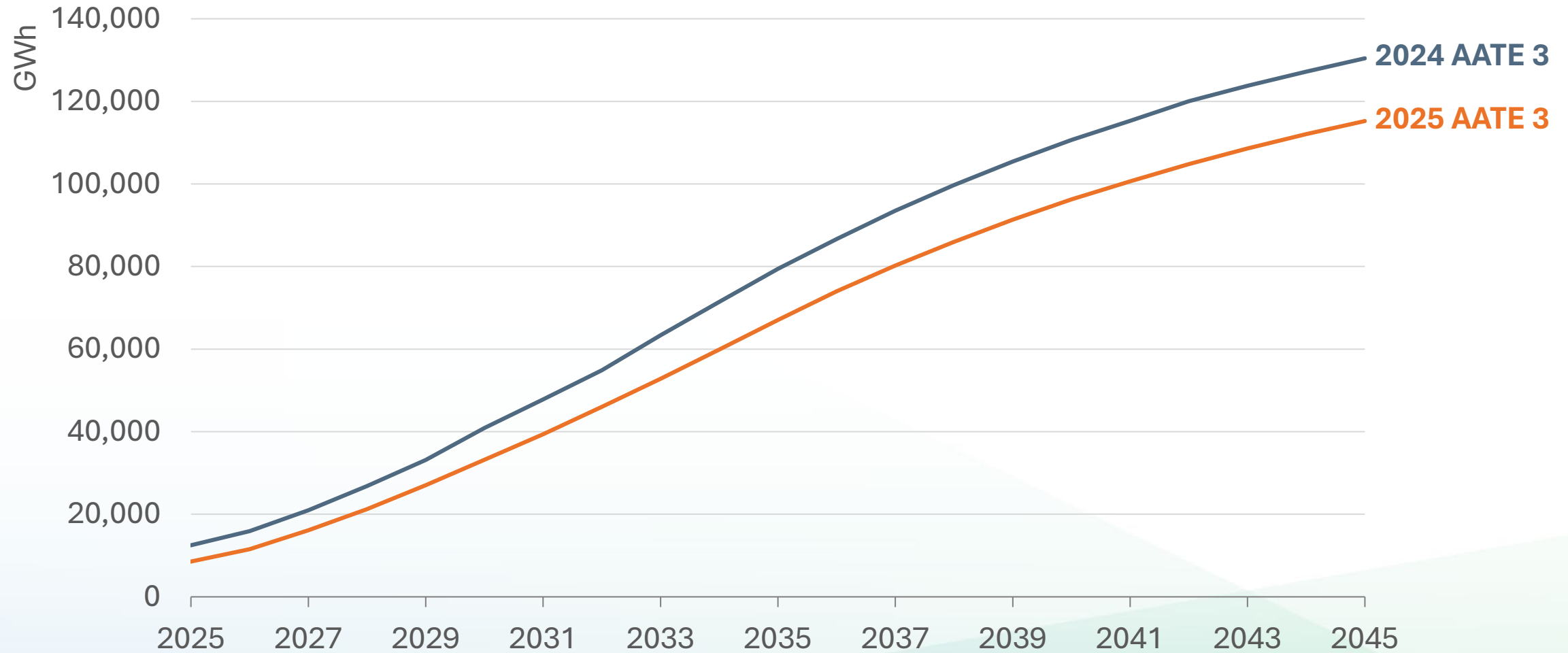


MDHD On-Road Freight Electricity Demand





Total On-Road Transportation Electricity Demand



Note: Not all transportation electrification GWh demand is treated as a load modifier. Some transportation electrification is factored into baseline electricity consumption, such as off-road, high-speed rail, and other transportation modes.



Considerations for 2026 and Beyond

- New Actions Resulting from Executive Order N-27-25
- Tariff Impacts and Associated Vehicle Price Data
- Updates to Vehicle Model Availability and Attributes
- Findings from 2024/2025 California Vehicle Survey
- Updated Load Shapes
- Improved Forecast Zone Energy Assignments
- Autonomous Vehicle Projections