

DOCKETED	
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Project Title:	Electricity and Gas Demand Forecast
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Document Title:	Presentation - Medium- and Heavy-Duty Forecast IEPR 2023 Inputs & Assumptions
Description:	7C. Maggie Deng, CEC_23-08-18_IEPR_Presentation
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Medium- and Heavy-Duty Forecast: IEPR 2023 Inputs & Assumptions








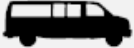

















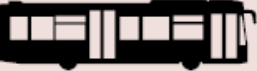





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Overview

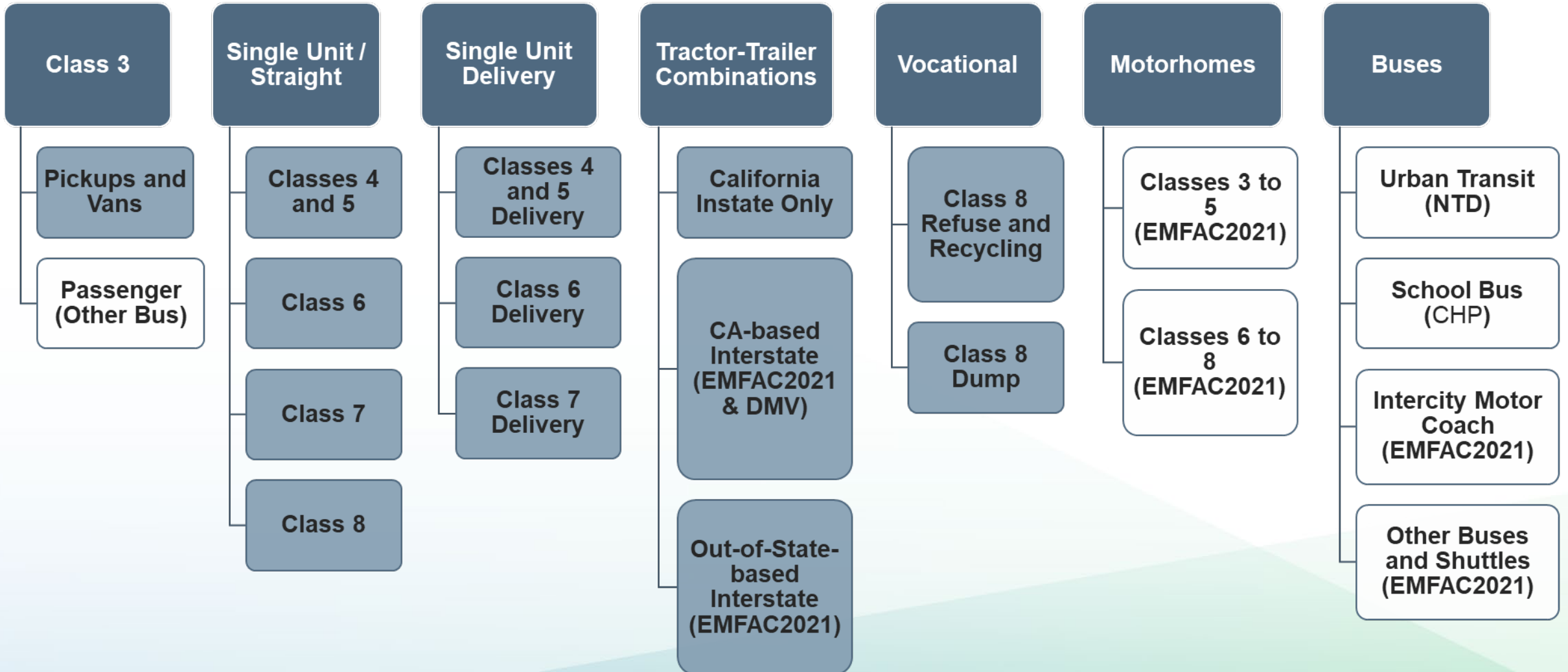
- MDHD Vehicle Classes
- Key Model Components
- Data Sources
- Incentives
- Truck Price Forecast

Class 1 6,000 lb & less	Small Cargo Van 	Compact Pickup 	SUV 	Minivan 	
Class 2 6,001 lb to 10,000 lb	Panel Van 	Standard Pickup 	Large SUV 	Large Passenger Van 	
Class 3 10,001 lb to 14,000 lb	Large Panel Van 	Heavy-Duty Pickup 	Straight Truck 		
Class 4 14,001 lb to 16,000 lb	Step Van 	Small Dump Truck 	Medium Straight Truck 		
Class 5 16,001 lb to 19,500 lb	Step Van 	Large Maintenance Truck 	Medium Straight Truck 		
Class 6 19,501 lb to 26,000 lb	Large Step Van 	Medium School Bus 	Medium Straight Truck 		
Class 7 26,001 lb to 33,000 lb	Class 7 School Bus 	Transit Bus 	Large Straight Truck 	2-Axle Tractor 	
Class 8 33,001 lb & Over	Coach Bus 	Large Transit Bus 	Large Straight Truck 	Tractor 	Refuse Truck 

Source: California Energy Commission staff



MDHD Vehicle Classes





Freight Forecast: Key Model Components

Inputs

Estimate Base Year
Commodity & Service
Truck Stock

Economic and
Demographic Forecast

Truck Choice Model

Truck Attributes
(e.g., Price, Incentives,
Maintenance)

Outputs

Forecast Demand for
Truck Miles

Truck Stock Forecast
(& Resulting Energy
Demand)



Freight Forecast: Deeper Dive



Key Inputs or Steps	Key Models and Sources Used
Economic and demographic forecast	Moody's Analytics
Existing truck stock	DMV Registration and HVIP Voucher Data
Vehicle miles traveled per vehicle	2021 Emission FACtor (EMFAC)
Truck usage	California Vehicle Use & Inventory Survey (CA-VIUS)
Fuel Types of New Truck Sales	Adapted Argonne Truck Choice Model
Truck attributes	Staff & Consultant Research
State Policies and Programs	CARB Regulations (ACT, ACF) and Programs (HVIP)
Freight Movement Demand	Freight Analysis Framework (FAF 5.0)

Other Initialisms/Acronyms: DMV = Department of Motor Vehicles; HVIP = California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program; CARB = California Air Resources Board; ACT = Advanced Clean Trucks Regulation; ACF = Advanced Clean Fleets Proposed Regulation



Incentives

- **Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)**
 - Base voucher amounts unchanged from 2022
 - Voucher amounts scaled to incremental truck price in forecast
- **Carl Moyer Low NOx Incentive**
 - Ranging from \$10k - \$25k for natural gas vehicles
- **Inflation Reduction Act**
 - Covers incremental cost of vehicles, capped at \$7.5k for Class 3 trucks and \$40k for other truck classes

HVIP Zero-Emission Vehicle (ZEV) Voucher Table

Vehicle Weight Class	Base Vehicle Incentive
Class 2b	\$7,500
Class 3	\$45,000
Class 4-5	\$60,000
Class 6-7	\$85,000
Class 8	\$120,000

Source: [HVIP Funding Updates](#)



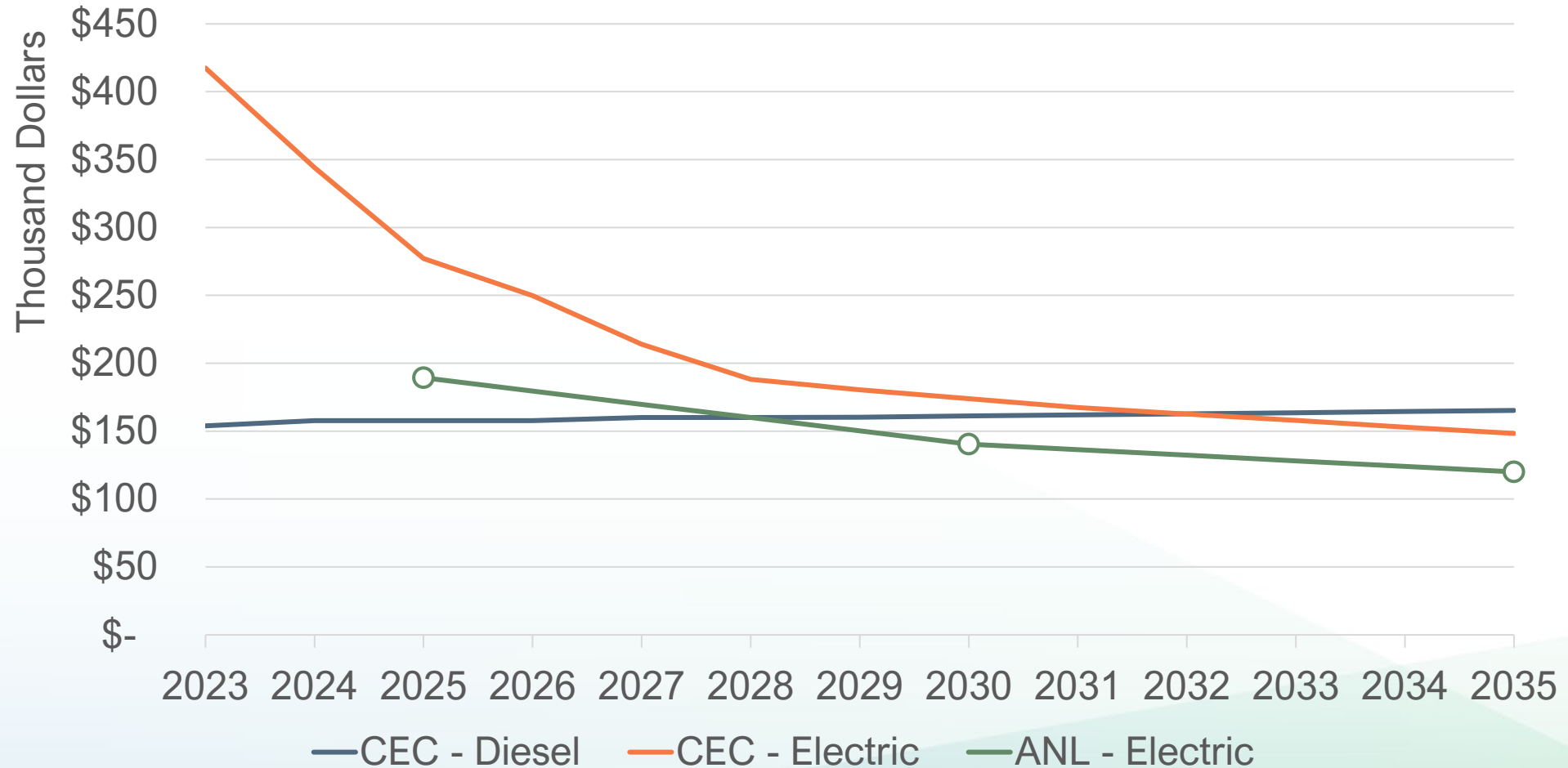
Comparison of Freight Forecast Scenario Features

	Baseline Forecast	AATE Scenario 2	AATE Scenario 3
Economic and Demographic Data	Baseline	Baseline	Baseline
Vehicle Attributes	Baseline	Lower ZEV truck prices	Baseline
Incentives	Baseline	Baseline	Baseline
Fuel Prices	Baseline	Baseline	Baseline
CARB Regulations	Baseline, which includes Advanced Clean Trucks (ACT)	Baseline	New vehicle sales assigned to match Advanced Clean Fleets (ACF) ZEV requirements



Truck Price Forecast

Truck Price Forecast for Class 8 Day Cab Tractor Trucks



Source: California Energy Commission staff and [Argonne National Lab report](#)

Thank you!



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