California Energy Commission

Light Duty Vehicle Demand: From Survey to Attribute Projection

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We Generate Light Duty Vehicle Demand Forecasts:

- By vehicle class: 15 classes in our last forecast.
- By vehicle technology/fuel type: 8 types in our next survey.
- Over a 2+ decade time horizon.
- Covering both household and commercial LDV market segments.

Light Duty Vehicle Demand Models:

- Are composed of different equations.
- Vehicle choice is one of these equations.
- Vehicle choice equation makes assessment of the consumer preferences for different vehicles.
- These vehicles are defined in terms of their attributes, including vehicle class, but excluding the manufacturer and model.
- Data obtained from stated preferences surveys of household and commercial fleet owners is used to estimate the vehicle choice equation.

Attributes

- Attributes presented to survey participants, in the stated preferences survey instrument, determine the attributes included in the vehicle choice equation . For instance, if the number of makes and models is not included in the survey, then it should not enter the choice equation.
- Ideally, these attributes should also be measured in the same way they are presented in the survey instrument. For instance if luggage space is defined by the # of suit cases, in the survey, then it should enter the choice equation in the same way.
- Hypothetical vehicles presented in the stated preferences survey embody different vehicle attributes.

Choice 1

Please review each vehicle including all its features below. Assuming these are the only vehicles available for you to purchase, please select the ONE vehicle you would most likely purchase.

Feature/Attribute	Vehicle A	Vehicle B	Vehicle C	Vehicle D
Vehicle Type	Midsize car	Compact SUV	Midsize car	Compact van
Fuel Type	Gasoline	Natural Gas (NGV)	Plug-in Hybrid (PHEV)	Clean Diesel
Age of Vehicle	New (2012)	New (2012)	New (2012)	New (2012)
Purchase Price	$31,400	$38,600	$33,100	$22,900
Trunk Space (Cubic Feet)	13.6	18	15.3	19
Incentive	None	HOV Lane Access	$7500 tax credit	None
MPG (fuel Cost Per Mile)	27.5 ($0.12)	22 ($0.08)	60 ($0.06)	31 ($0.09)
Time to a Refueling Location	5 min	25-30 min	15-20 min for non-home charging	10 min
Refueling Time	10 minutes	10 minutes at station, OR 2 hours at home	15 minutes at station, OR 4 hours at home	10 minutes
Range (miles you can drive on a full tanks)	508	300	508	558
Maintenance Cost Per Year	$405	$370	$350	$419
Acceleration (time to go from 0 to 60 miles per hour)	8.0 seconds	11 seconds	8 seconds	11.8 seconds
Select One	☒	☒	☒	☒

Vehicle Manufacturers (OEM)

- Make their own assessment of domestic and International demand for these vehicle attributes.
- OEM's market assessment can change with changes in fuel prices, consumer income, and regulatory environment.
- They combine these and other projections to shape their product development plans, investment, and market response.

Vehicle Attribute Projections

- We do not currently own a vehicle supply model and rely on our consultants to generate projections of vehicle attributes, under different economic and policy scenarios, for use in our vehicle demand forecasting model.