Project description/goals:
This research project focuses on understanding the critical elements of a transition to alternative-fueled medium- and heavy-duty trucks for the purposes of greenhouse gas and criteria emissions reduction. This work will focus on vehicle/technology performance and costs, and important purchase decision factors in determining the adoption of alternative fuel truck technologies in various truck segments.

Key research questions

1) What factors do truck and fleet owners/operators consider when making decisions to purchase trucks and how do these factors influence the purchase of alternative fueled and advanced trucks?

Key factors we are working to quantify: Capital Cost; Operating costs (fuel use, maintenance); Environmental perception; Uncertainty (Risk); Incentives; Vehicle Range; Refueling Time; Station Availability; and Carbon Tax

2) What are reasonable adoption rates for alternative truck technologies in the near-term and how does this influence how we achieve a low-carbon, low emissions fleet to meet longer-term air quality and greenhouse gas goals for transportation?

3) How does infrastructure deployment influence the purchase of alternative fueled trucks?

4) What sorts of policy levers and incentives can help bring about these changes to a sustainable truck fleet?

The Truck Choice Model is based upon a Nested Multinomial Logit (NMNL) framework

Used in many vehicle choice approaches based on work by Greene

Nests represent groupings of similar technologies that consumers consider close substitutes

Truck Choice Model results

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