National Center for Sustainable Transportation

Project Information Form

Project Title:	Developing Markets for Zero-Emission Vehicles in Goods Movement
University:	University of Southern California
Principal Investigator:	Genevieve Giuliano
PI Contact Information:	Email: giuliano@usc.edu
Funding Source(s) and Amounts Provided (by each agency or organization):	California Department of Transportation (Caltrans) - $59,004.20
Total Project Cost:	$59,004.20
Agency ID or Contract Number:	USC-CT-TO-037 Caltrans 65A0527 Task Order 037
Start and End Dates:	April 25, 2017 – January 31, 2018
Brief Description of Research Project:	This report evaluates the market status and potential freight market penetration of zero emission vehicles (ZEVs) and near-ZEVs in the medium and heavy duty class within the California market. It evaluates alternative technologies, primarily battery electric, fuel cell, and hybrid technologies, and compares them to existing gasoline, diesel, and natural gas vehicles used in comparable applications. Refueling infrastructure requirements and logistics planning are considered along with vehicle technology. The report's primary focus is on intra-urban, as opposed to long haul, deployment scenarios. Intra-urban scenarios produce the greatest potential for reduction of pollutant exposure while minimizing problems associated with the reduced range of some developing vehicle technologies. In California, there are currently 2080 hybrid, 300 medium duty and 40 heavy duty electric vehicles in demonstration or revenue service. There are currently plans to deploy several dozen heavy duty fuel cell vehicles in the near future. The literature review finds that while there are substantial existing studies providing direct comparisons between light-duty electric and fossil-fueled vehicles during actual operation, heavy-duty electric vehicles (e.g., class 8) have been less well studied. Fuel cell vehicle studies are also very sparse, and are primarily available in the public transit sector for buses. ZEV vehicles are still comparatively more expensive to purchase,

	though they have much higher fuel efficiency when compared with traditional diesel technology. Due to range restrictions, these vehicles would also require additional attention to routing and refueling, which at present is considered on a case-by-case basis by each company conducting demonstration projects thus has limited comparability.
Describe Implementation of Research Outcomes (or why not implemented): Place any photos here	
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links Reports Project website	https://ncst.ucdavis.edu/project/developing-markets-for-zero-emission-vehicles-in-short-haul-goods-movement/ Associated Project: https://ncst.ucdavis.edu/project/developing-markets-zero-emission-vehicles-zevs-goods-movement/