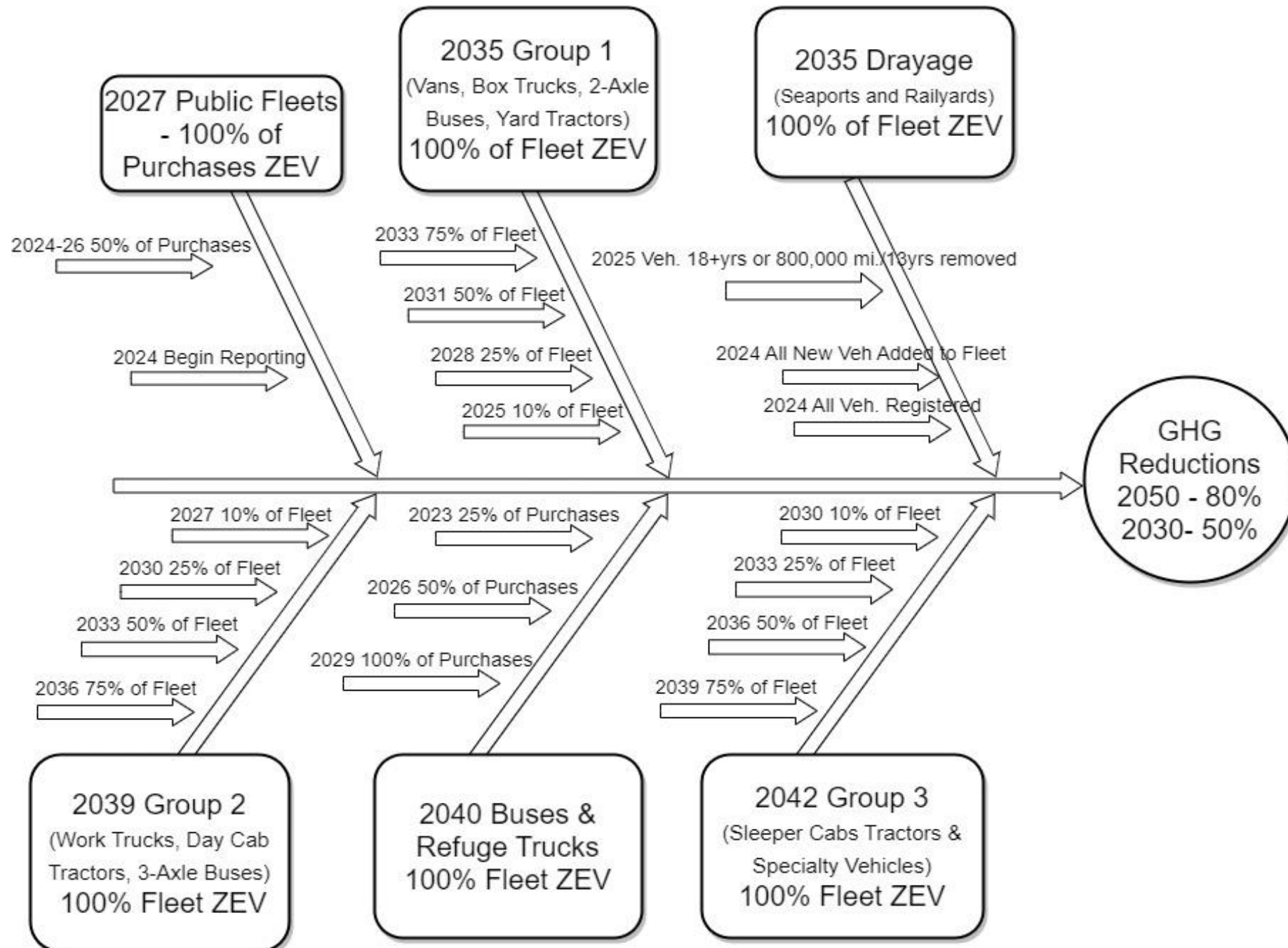


Abstract

This study looks at the electrification of the medium- and heavy-duty vehicles in the Southern California's Inland Empire. The goal is to provide an overview of the current transition and the equity considerations.

Current State Goals for the MDHD ZEV Transition



Voices from the Public & Private Sectors

"I think initially, most of the people are kind of transitioning to newer equipment that can be on their registry for a while, but I think in the next 3 or 4 years you'll see where trucks kind of mile out, or hit that 800,000 mile limit, or they hit their year limit and they're a smaller 10 and under size carrier that's where the struggle is going to come in, because I don't know by then 3 or 4 years from now we're going to be in a better place when it comes to the cost of the zero emission trucks or just the drayage side, that goes into trying to get through the process, not only buying the vehicle, but the infrastructure piece and then eventually what happens when we don't have enough money."

Public Sector Representative

"Our calculation right now is about charging up to 6 hours before to use the truck next day."

Private Sector Representative

"I think things are going to change pretty fast and the hard part is for people to make big investments in infrastructure, knowing that something might change in the future."

Private Sector Representative

"So, like certain companies are able to have a fixed route return to base operation, I think in that instance you know obviously more traditional charging may work for them, but it is not the case for all, I think is clear trucking companies need several options when it comes to charging, because something can always come up."

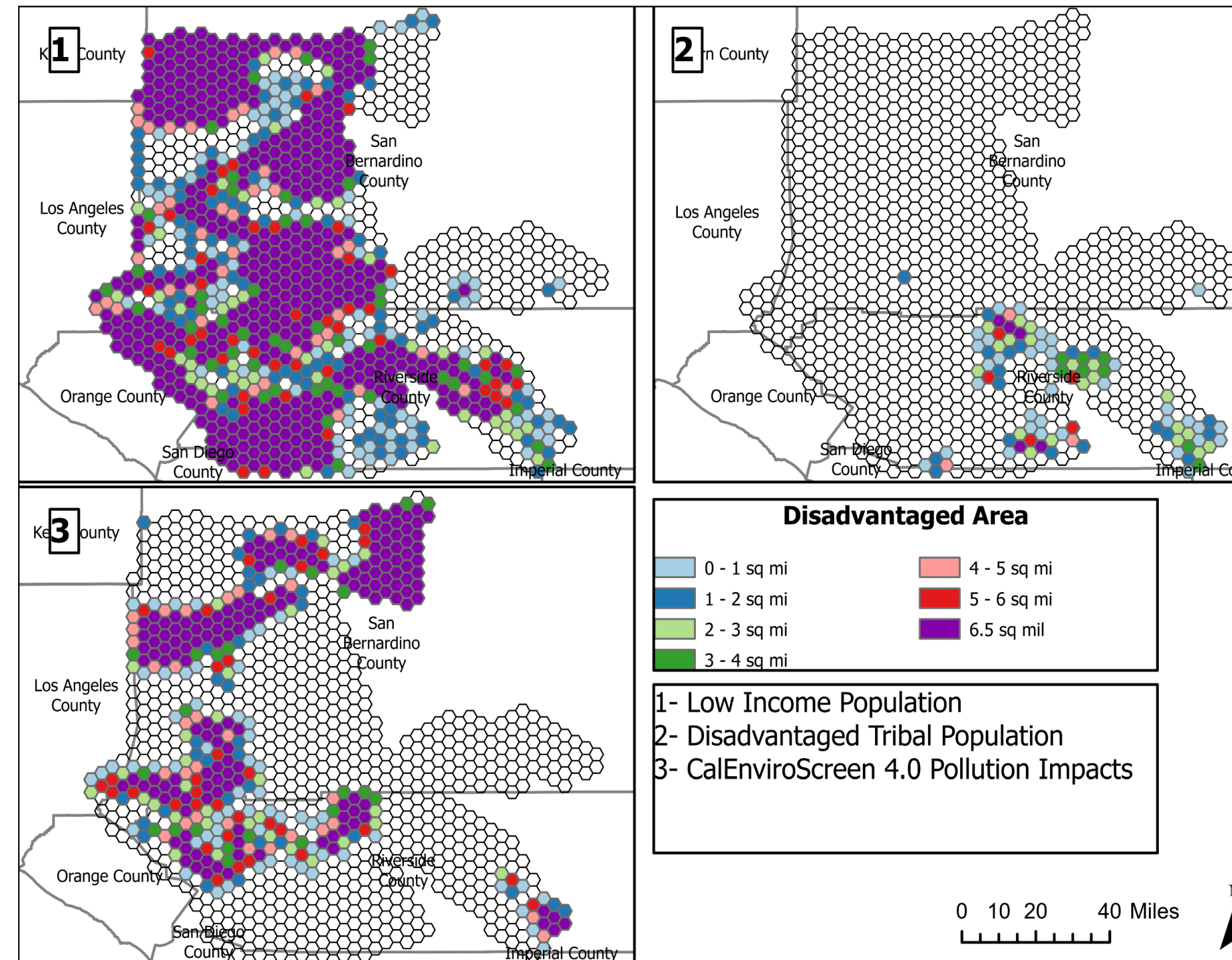
Private Sector Representative

"So, they work for us just based upon what's available out there in the truck battery pack range, we will definitely want to take advantage of some opportunity charging."

Public Sector Representative

Equity Considerations

1. There is a high concentration of disadvantage communities in the Inland Empire
2. There is high concentration of small, independent companies within this sector. Though we don't have them mapped out, we know there is a lot of overlap.



Type of Business Ownership	Number of Businesses	Number of Employees	Mean Per Business
Independent Owners	6,077	42,397	6.98
Branch Operations	1,745	55,607	31.87
Head Quarters	42	4,317	102.79

MDHD Costs

Used diesel engine class 7-8 trucks run approximately at \$250,000. A new class 7-8 cabs are \$450,000. EV chargers can cost \$100,000s. This puts the ZEV transition out of the reach for many.

Existing Incentive Programs

Federal Programs:

Inflation Reduction Act – tax credits for electric vehicle purchase

National Renewable Energy Laboratory – rebates for electric vehicles

U.S. Department of Energy – research funds for the development and demonstration of electric vehicle technologies.

State Programs:

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) – vouchers up to \$315,000 per vehicle

Clean Vehicle Rebate Project (CVRP) – rebates to electric pick-up trucks

California Climate Investments (CCI) – support for projects and programs to support the transition to electric trucks

EnergIIZE Program – funds for charging infrastructure for companies and governments for maintenance facilities and workforce training.

California Air Resources Board (CARB):

Innovative Small e-Fleet (ISEF) Pilot Program – assistance for small fleets and owner-operators with upfront costs, constrained financing and insurance options, and overcoming the complexities of the fueling infrastructure.

Heavy-Duty Vehicle Incentive Program (HVIP) – funding for small fleets to obtain all-inclusive leases, peer-to-peer truck sharing, truck-as-a-service programs, and assistance for infrastructure planning.

South Coast Air Quality Management District (AQMD):

Voucher Incentive Program (VIP) – financing incentives for small fleets

Carl Moyer Program – incentives to adopt electric vehicle charging infrastructure

San Pedro Ports (Los Angeles and Long Beach):

California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program -- fleets with 10 or less trucks, \$100,000 per truck available; fleets with 11 trucks or more \$75,000 per truck available. Funds can be used in conjunction with other funding mechanisms.

Southern California Edison (SCE):

Charge Ready Transport Program – assistance with the installation of EV charging infrastructure.

Takeaways

This transition to a zero-emission fleet is developing a new market with creating demand from a new regulatory environment and supply created with new technologies in the automotive and energy industries.

Charging infrastructure needs to be developed to ensure that those with the greatest need will have access.

Workforce development programming with an emphasis on quality, high paying jobs.

Communication is key and knowledge management models need to be generated. There are a few groups such as JETSI and eTRUC-RHETTA that are working to bring an equitable transition but from our conversations with key stakeholders more needs to be done.

The incentives exist to help with the transition and this needs to continue with a special emphasis on the small and medium-sized firms.

Providing infrastructure equitably through the community will be necessary to lower the impacts to already disadvantaged areas.

Decisions based upon data and analysis needed to ensure that the transition is happening as planned. More work is needed as a number of different impacts will occur in the business community that are not fully understood.



California State University
Transportation Consortium



Leonard Transportation Center