



Synergistic Integration of Transportation Demand Management Strategies (Land Use, Transit, and Auto Pricing) with New Technologies and Services (Battery Electric Vehicles and Dynamic Ridesharing) to Enhance Reductions in VMT and GHG

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Study Methods

This study uses the San Francisco Bay Area's Metropolitan Transportation Commission Activity-Based Microsimulation Model to explore the potential reduction in vehicle miles traveled (VMT) and related greenhouse gas (GHG) emissions from regional dynamic ridesharing and battery electric vehicle (BEV) scenarios with and without transit oriented development (TOD) and auto pricing policies.

Up to 40% of trips could be made by a ubiquitous ridesharing service, and up to 20% of vehicle miles traveled could be reduced when certain conditions are met.

Findings

The results of this study suggest that dynamic ridesharing has the potential to significantly reduce VMT and related GHG emissions, which may be greater than land use and transit measures typically included in Sustainable Community Strategies (under California Senate Bill 375) if travelers are willing to pay with both time and money to use the dynamic ridesharing system. The combination of dynamic ridesharing with the TOD and VMT Fee scenarios suggests some policy combinations that may be more effective than dynamic ridesharing alone but perhaps more politically palatable than land use and auto pricing measures. For example, a moderately used regional dynamic ridesharing with 10 cent increase in VMT fees may produce reductions in VMT on the order of 11% compared with a business-as-usual scenario in one horizon year. The auto pricing scenarios show the greatest potential to increase the size of the battery electric vehicle market.

Policy Recommendations

The emerging behavioral research on dynamic ridesharing use and battery electric vehicles adoption should be carefully monitored. Science-based policies are needed to guide market expansion of these services and vehicles to ensure reduction in vehicle miles traveled and greenhouse gas emissions.

About the Authors

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/I207.html