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Poster Title: Multi-Unit Dwelling Parking Availability and Electric Vehicle Charging Infrastructure Analysis

Abstract: Plug-in electric vehicles (PEVs) enable the reduction of energy consumption and emissions from automobile transportation, ultimately promising a less energy intensive transportation solution by way of vehicle electrification. One of the many factors that determines the utilization of PEVs is availability of charging infrastructure at home. The U.S. is home to a rich set of housing situations, with varying parking availability, which can impact the ability to install PEV chargers. Indeed, a lack of electric vehicle supply equipment (EVSE) at multi-unit dwellings (MUDs), combined with less robust direct current charging infrastructure, leave prospective PEV consumers isolated without reliable access to necessary equipment to own a PEV. This is especially the case with MUDs, where ownership and parking availability barriers often prevent the installation of EVSEs, potentially reducing the adoption of PEVs by these households. Despite comprising a substantial percentage of U.S. population in areas with generally PEV-favorable demographics, studies often treat MUDs in an ad-hoc manner given the unique ownership challenges they present. This analysis addresses this issue by conducting an inventory of U.S. housing stock and making estimations for the availability of home charging based on residence type and parking access. We identify representative households and Public Use Microdata Areas (PUMA) that exemplify strong EVSE installation potential and subsequent PEV adoption. Our study offers insights into the demographic and geographic profile of households with strong potential to install EVSE. This information subsequently uncovers a new perspective on one of the primary barriers for PEV adoption and how stakeholders can be better informed to facilitate better PEV adoption in the future.