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Title: Facilitating Electric Vehicle Adoption with Energy Cost Calculators

Abstract: Consumer benefits of driving an electric vehicle (EV) can include potential savings in energy costs. However, estimating one's potential savings with an EV compared to a conventional internal combustion engine vehicle is a complex endeavor, requiring knowledge of current gas prices, electricity prices for prospective charging locations, average mileage of comparison vehicles, and more. Online vehicle energy cost calculators (VECCs) are an important tool to help consumers understand potential energy cost savings, and thus to support EV adoption. VECCs provide estimated energy costs for multiple vehicle types and models, and enable the user to tailor cost estimates based on various factors (e.g., gas and electricity prices, availability and type of charger at home and work, etc.).

At BECC 2017, we presented experimental research with a popular VECC called EV Explorer. That research validated the tool as an educational and persuasive strategy to promote EV adoption, and indicated some features and functionalities that contribute to its effectiveness. This presentation will share findings of our latest study, which aimed to articulate a comprehensive set of design specifications for effective VECCs that educate consumers and nudge them towards EV adoption when appropriate for their needs. Toward this end, we conducted usability testing with several VECCs, strategically selected to represent all available features and functionalities. Participants included consumers actively seeking a vehicle to purchase or lease. We will present results in the format of a newly designed VECC, EV Explorer 2.0., which incorporates all the important features and functionalities distilled from our research.