

Panel Discussion: Energy and Sustainability

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Introduction

- Consumers' decision making, perceptions, and information with regard to electric vehicles
 - Example of ranking gasoline, hybrids, and electric vehicles (EVs) given information about five-year fuel savings and total cost of ownership
 - Simple way of increasing consumers' interest in alternative fuel vehicles
- Comparison of emissions from electric and gasoline vehicles
 - Zero (tailpipe) emission vehicles
 - State-by-state comparison

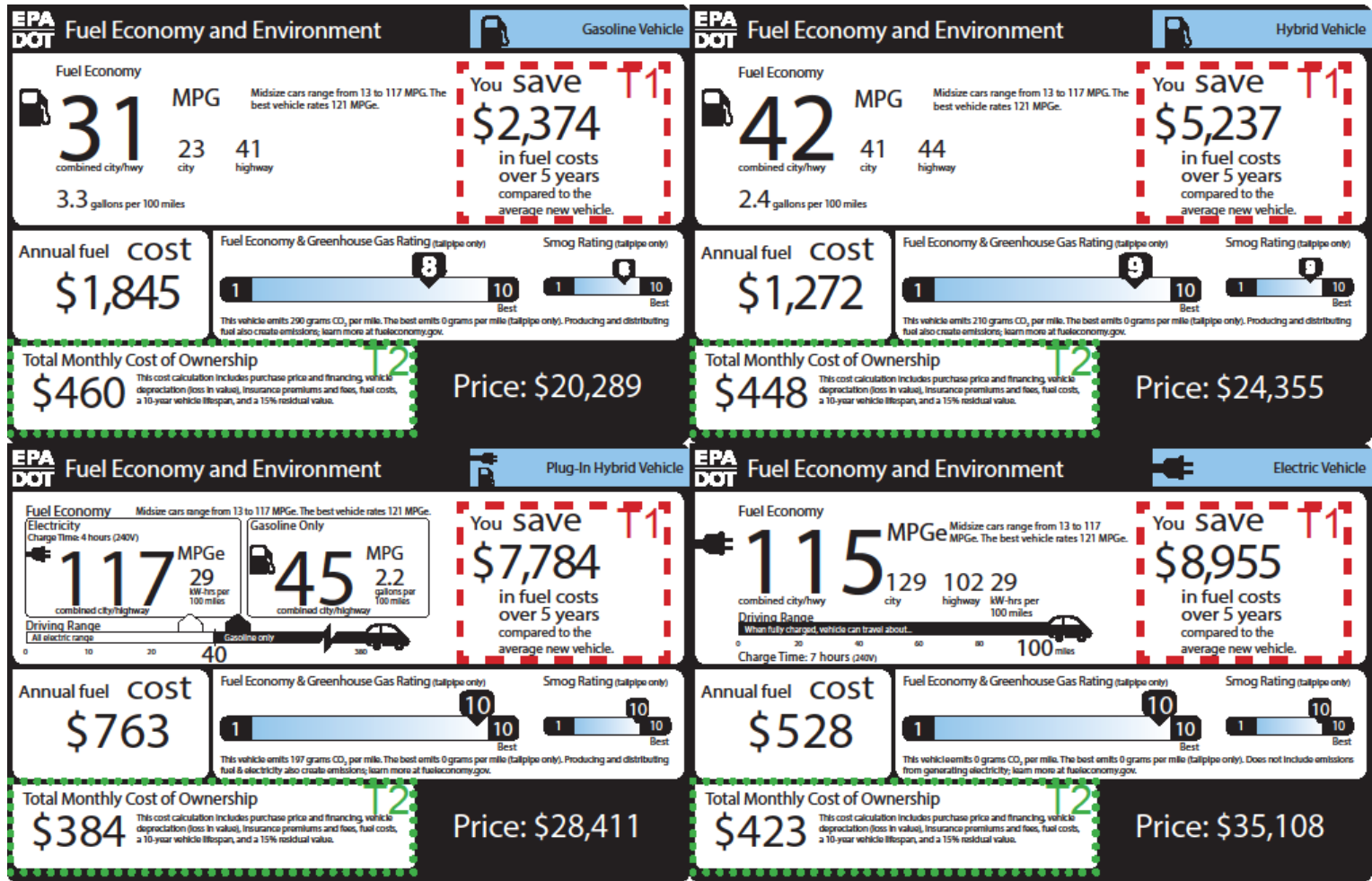


Consumer Decision Making: EVs

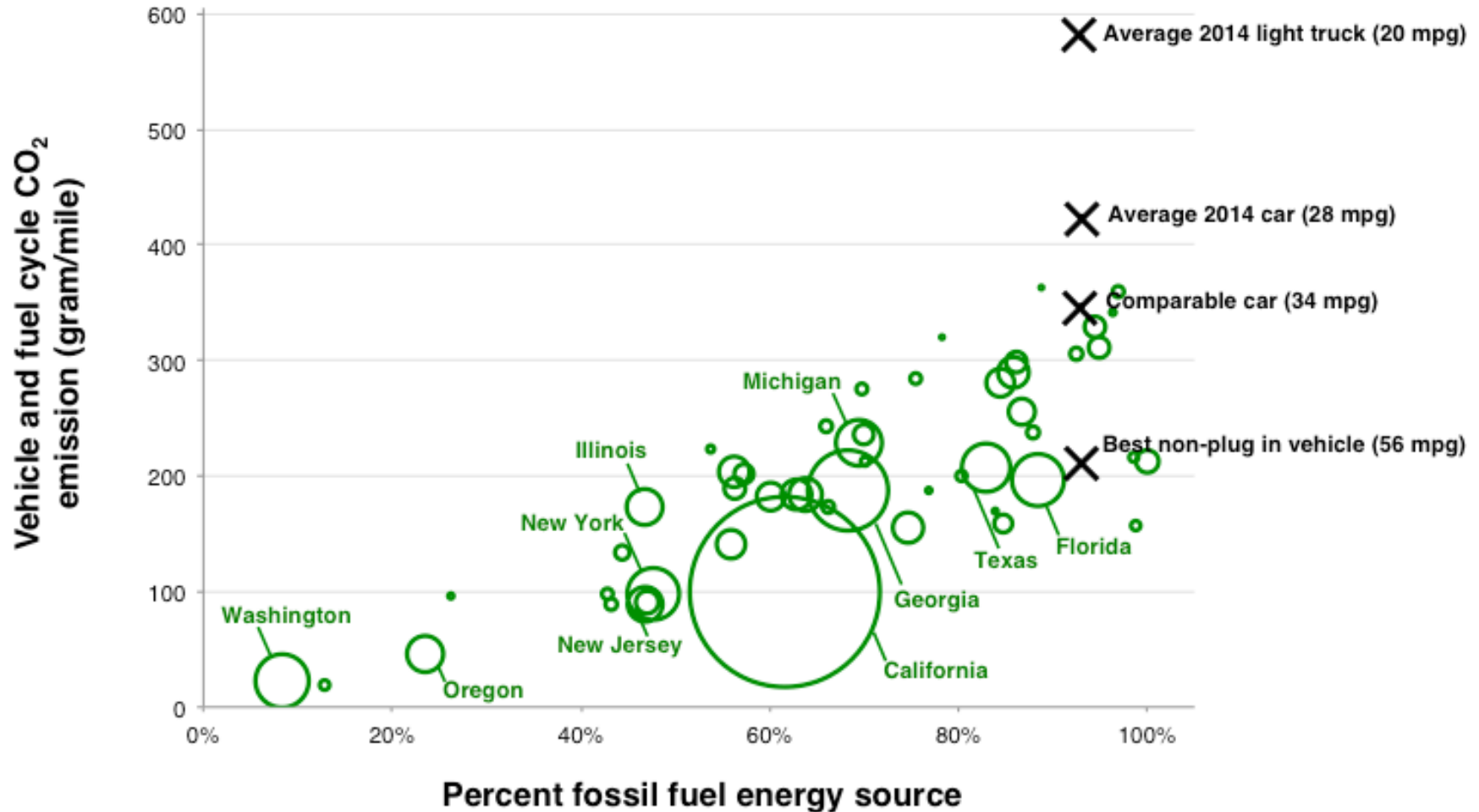
- Higher initial purchase price but lower operating cost for plug-in electric vehicles compared to gasoline vehicles
 - Do consumers process information with respect to five-year fuel cost savings?
 - Do consumers process information with respect to total monthly cost of ownership (TCO)?
- Research design
 - Presentation of EPA labels with and without TCO information
- Results
 - Consumers do not respond to five-year fuel cost savings.
 - Consumers' preference ranking of vehicles change if total cost of ownership information is available.



EPA Labels and Total Cost of Owner



Emissions from Electric Vehicles



[Source: The International Council on Clean Transportation \(ICCT\) – Turning over a new leaf: Electric vehicle carbon emissions](#)



Charging Profile and Emissions

- Vehicle emissions are highly dependent on the fossil fuel mix used for electricity production
- [Beyond Tailpipe Emissions](#)
- Charging profile of the electric vehicle user plays an important role as well ([NREL 2016](#))
 - Lowest level of emissions for drivers with ability to recharge at the work place for majority of electricity production profiles.
 - Charging restriction to off-peak hours results in higher emissions for all vehicle types.
- Possibility to reduced emissions associated with driving an electric vehicle: Purchasing “[green power](#)”
 - Generation or purchasing renewable electricity



Questions or Comments?

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