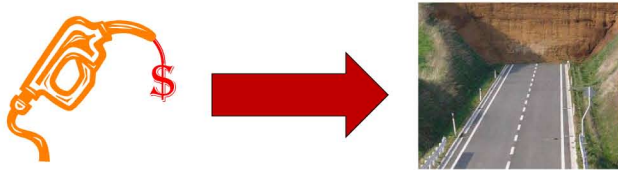


## Scope of Problem

- Deepening penetration of Battery Vehicles (BVs) will reduce funding of the transportation infrastructure due to the reduced gasoline tax collection.
- Proposed solutions have not been accepted because of privacy concerns.



Funds through Motor Fuel Tax will be insufficient

## Current Revenue Sources

- Tolls
- Taxes
  - a) Motor fuel
  - b) Vehicle registration
  - c) Truck tire excise
  - d) Truck and trailer sales
  - e) Heavy vehicle use



BVs will have to contribute to the funding of infrastructure

## Naïve Solutions

- Tax BV electricity consumption.
- Impose higher BV registration fee.
- Introduce a mileage-based tax by monitoring vehicle road usage through GPS.

## Towards a Practical Solution

- Socket tax.
- Mileage metering.
- Privacy-regulated GPS tracking and taxing.

## Privacy Considerations and Concerns

- Nature of information identified, collected, and stored.
- Data ownership and control.
- Nature and form of information communicated to the administering agency.

## Earlier Projects

- National Evaluation of Mileage-Based Charges for Drivers, University of Iowa Public Policy Center, 2011.
- Oregon's Mileage Fee Concept and Road User Fee Pilot Program, Oregon Department of Transportation, 2007.

## Research Focus

- Security: integrity, confidentiality, and availability.
- Privacy concerns and public acceptance.
- Conflict resolution.
- Usability.
- Practicality of deployment: cost, scale, and feasibility.

## Next Steps

- Literature review.
- Requirement specification.
- Approach and design.
- Taxes
  - a) Using Advanced Metering Infrastructure (AMI) concepts.
  - b) Explicitly addressing privacy concerns.
- Prototype and validation.

