

HIGHWAY CHALLENGES: VEHICLE ELECTRIFICATION AND REPLACING FUEL TAXES

Robert Poole

Director of Transportation Policy

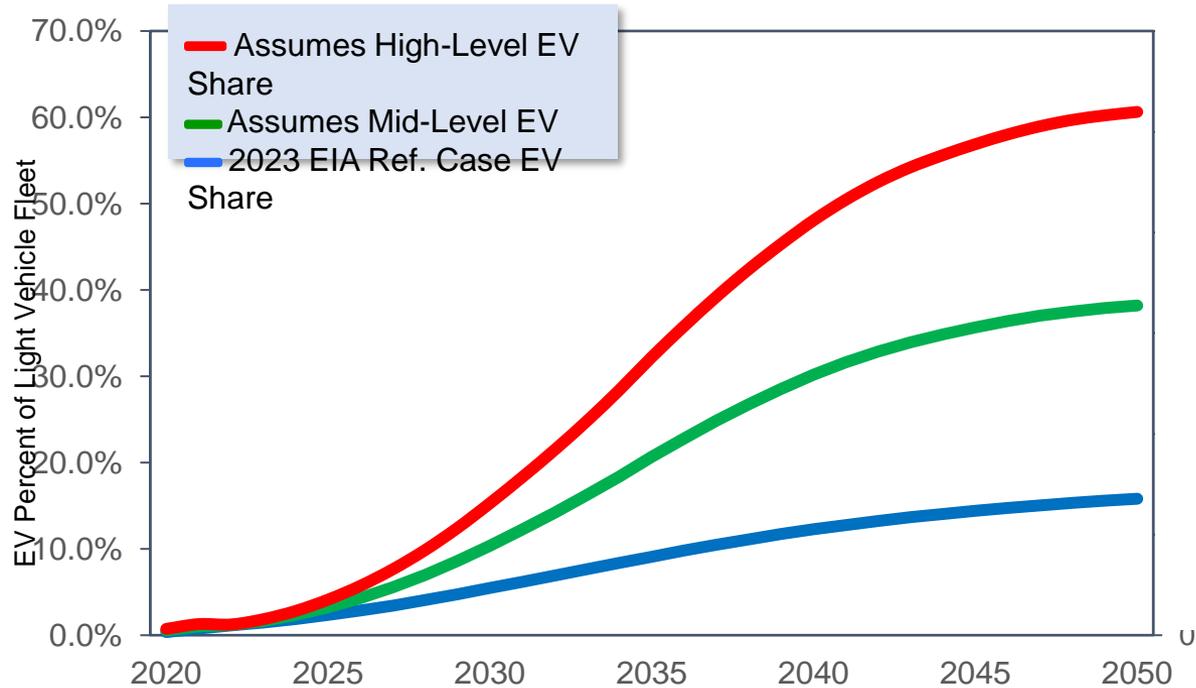


reason
FOUNDATION

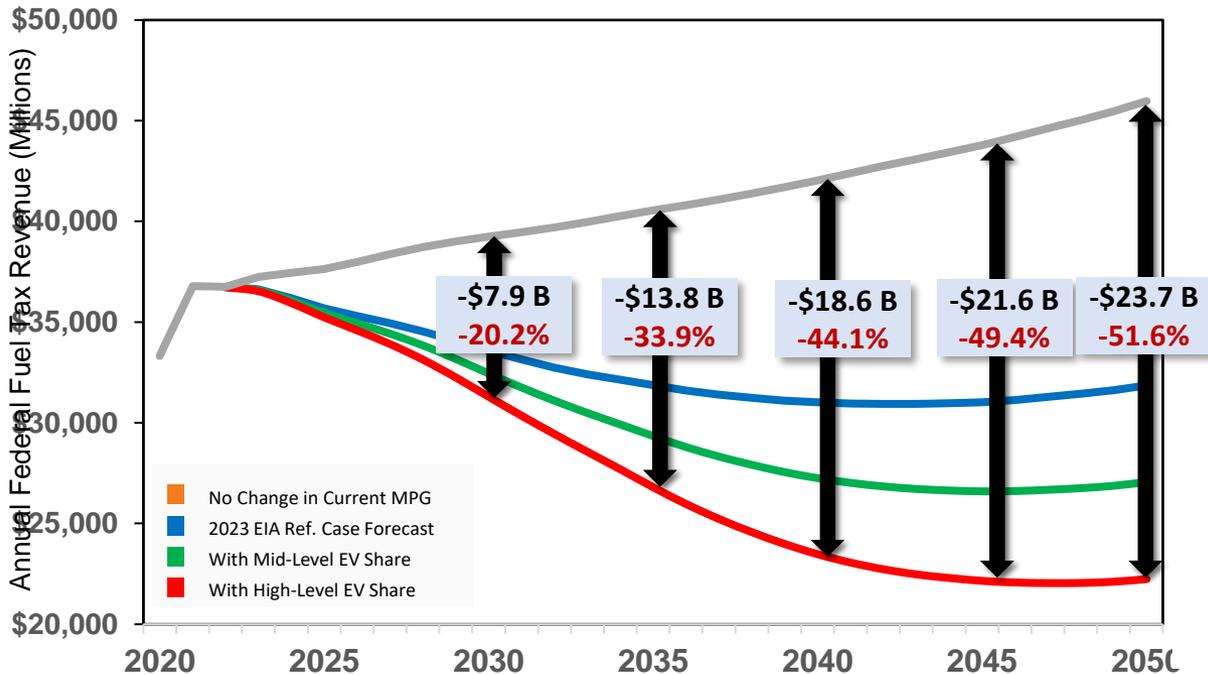
Background

- Federal & state policies favor EVs replacing ICE vehicles over next two decades.
- Implications for highways:
 - Need to replace fuel taxes with per-mile charges.
 - Need for vehicle recharging facilities

Alternative Estimates of U.S. Light Vehicle Fleet EV Shares



Estimated Annual Federal Fuel Tax Revenue Impacts With “High-Level” EV Penetration



Why the decline in fuel tax revenue?

- Declining rate of VMT growth
 - Federal fuel-economy regulations
 - Federal & state policies favoring EVs
-
- Source: “Highway Trust Fund: Running on Empty,” House Transportation & Infrastructure Committee, Oct. 18, 2023

Transition to per-mile charging over several decades



- State pilot projects over past 10 years
- Multi-state projects in past 5 years
- Multi-state truck pilot projects in past 5 years
- Congress in IIJA authorized first national pilot, but startup is 2 years behind schedule.

Concerns revealed by pilot projects



- Double taxation
- Privacy
- Rural vs. urban
- Cost of collection



Addressing mileage-fee concerns

- Start with type of highway, not type of vehicle.
- Limited-access system is best place to start:
 - One-third of all VMT (large impact).
 - Widely accepted all-electronic tolling on selected Interstates (privacy concern).
 - Much lower collection cost with prepaid transponder accounts.
 - Need to provide fuel-tax refunds for miles driven on converted corridors (“double taxation” concern).



What about all other roads?

- Wait until much of limited-access system is converted.
- Wait for better technology (e.g., widespread vehicle telematics) to address privacy and collection costs.
- Phase out fuel taxes for converted state highways.
- Last step would be county/local roadways.
- Offers prospect of roadway utility bills.

Sample roadway user fee bill

SAMPLE ROADWAY USER FEE BILL



2035 [STATE NAME] ROADWAY UTILITY STATEMENT

ACCOUNT INFORMATION

Account Number

Name

Address

ROADWAY USE AND CHARGES

Providers	Per-Mile Rate	Miles Driven	Amount
County Agency	2.0 cents/mile	3,122	\$62.44
[STATE] DOT	2.5 cents/mile	6,048	\$151.20
(Limited Access Providers*)	5.5 cents/mile average	4,830	\$265.65*
Total		14,000	\$479.29
Amount Due			\$213.64

*(billed separately)

ROADWAY USAGE



AMOUNT DUE:

\$213.64

EV recharging on long-distance highways



- Federal program requires charging facilities every 50 miles, to address “range anxiety.”
- Charging must be within one mile of off-ramps.
- Federal law bans “commercial services” at Interstate highway rest areas.
- Tolled Interstates have large services plazas and are adding EV charging at them.

Why was the ban on commercial services imposed in 1960?

- Early Interstates bypassed small towns and their service businesses.
- Much pressure on Congress to save those businesses.
- Compromise: encourage them to build new outlets at Interstate off-ramps.
- Hence, federal ban on all commercial services at Interstate rest areas (except vending machines).

Comparison with tolled Interstates



- About 5% of Interstate route-miles are toll roads (PA Turnpike, Indiana Toll Road, etc.)
- They were already in operation or being built when Interstate law was enacted in 1956, so were exempted from the 1960 ban.
- They have extensive service plazas with many food options, gas stations, and other amenities.
- These plazas are adding EV charging and increased truck parking.

Why is the ban still in place?

- Strong support from trucking and truck stop groups.
- ATA and its state affiliates oppose any change, but independent truckers (OOIDA) support commercialization.
- NATSO (truck stop operators) is most vocal opponent and has defeated previous congressional attempts to repeal the ban.
- NATSO has recruited numerous franchisees of fast food and and gas station companies



reason
FOUNDATION

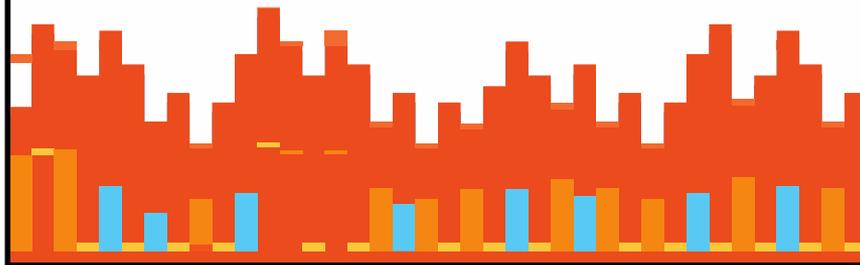


reason
FOUNDATION

RETHINKING INTERSTATE REST AREAS

by Robert W. Poole, Jr.

April 2021



Reason Foundation study

- Truck stops are not adding much parking.
- Interstate rest areas are much smaller than turnpike service plazas.
- State DOTs would need to expand or add new locations.
- Private companies are financing, developing, and operating expanded plazas on toll roads.
- They would likely finance and develop new service plazas on Interstates, if legalized.



Recent toll road service plaza P3s

<u>State</u>	<u>Year</u>	<u>Plazas</u>	<u>Term (yrs)</u>	<u>Company</u>	<u>Investment</u>
CT	2010	23	35	Carlyle	\$178M
DE	2010	1	35	HMS Host	n.a.
FL	2009	8	30	Areas USA	\$ 91M
IN	2016	8	30	HMS Host	\$ 70M
MD	2012	2	35	Areas USA	\$ 56M
NY	2020	27	33	John Laing	\$450M



Impact of Reason study

- Positive coverage in trucking media: online, print, and radio talk shows.
- Ad-hoc coalition to legalize EV charging at rest areas.
- Taking part were:
 - State DOTs and AASHTO staff
 - NCSL staff
 - Business groups
 - EV groups and companies
 - Environmental groups



Recent congressional efforts

- 2020 House reauthorization bill included EV charging on Interstates provision.
- 2021 efforts aimed at including that in either:
 - Bipartisan infrastructure bill, or
 - Reconciliation bill
- Those efforts failed.



Growing awareness of the need

- EV charging companies cite:
 - Lack of security
 - Lack of other services (while vehicle is charging)
 - Charging needs to be part of a service business
- If few companies install highway chargers and/or if few people use them, pressure will be on Congress to allow other services.
- State DOTs would need private capital to expand acreage and build actual service plazas, as on toll roads, via long-term P3s as on tolled Interstates.



Summary

- Long-distance highways are poised for two major changes in coming decades:
- Replacement of fuel taxes with mileage-based user fees (MBUFs)/road user charges (RUCs).
- Need to add huge numbers of EV charging stations with needed amenities.
- Interstate rest areas are good candidates for that expanded infrastructure, if Congress allows it.

Questions?



- Robert Poole
- Bob.poole@reason.org.