Electric Vehicles Impact on Gas Tax Shortfalls for Highway Funding

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Currently Federal Tax is $0.18 (since 1993)

State taxes vary ($0.12 to $0.53)

Majority of taxes collected pay for highway funding and maintenance – Highway Trust Fund

Federal funds, on average, provide 52% of annual State DOT capital outlays for highway & bridge projects

Notes: Does not include 18.4-cent/gallon federal excise tax. The American Petroleum Institute has developed a methodology for determining the average tax rate on a gallon of fuel. Rates may include any of the following: excise taxes, environmental fees, storage fees, tax, general sales taxes, or other fees/taxes. Data as of Apr 25, 2014. Published Jun 3, 2014.

Sources: American Petroleum Institute.
Highway Trust Fund – Gas Tax Dependent

Federal and State Highway Revenue Depends Heavily on Gas Tax and Other User Fees

Sources of highway revenue, by level of government

- Federal
  - Fuel taxes, vehicle taxes and tolls: 27%
  - General fund appropriations: 6%
  - Other taxes and fees: 1%
  - Property taxes: 9%
- State
  - General fund appropriations: 26%
- Local
  - Bond issue proceeds, investment income, and other receipts: 42%

Source: Pew analysis of Federal Highway Administration data from 2011
Highway Trust Fund in the News...

**2013 Bloomberg News**

U.S. Highway Trust Fund Faces Insolvency Next Year, CBO Says

**2014 The Post’s View**

Congress recklessly refuses to top up the Highway Trust Fund

**2014 U.S. Transportation**

Highway Funding Is About to Run Out

DANGER AHEAD: America’s bridges and roads crumbling, and the Highway Trust Fund is set to go broke in 2014

**Equipment World – Feb 2015**

Trust Fund uncertainty to delay $1 billion in Arkansas projects

**MSNBC – July 2014**

Highway funding still stuck in gridlock

**Baltimore Sun – Feb 2015**

States scramble as federal highway funding erodes
What’s the issue?

- Decline in Gas and Vehicle Tax Revenue
  - Increased construction costs (up to 335%)*
  - Miles driven have decreased
  - Increased fuel efficiency
  - Fixed gas tax rate (both federal and state)
  - Falling vehicle taxes (per household decline)

*From US DOT
Increase Federal Gas Tax

Forbes June 2014

AAA: Most Americans Support Federal Gas Tax Increase If It Leads To Better Roads

ABC NEWS January 15, 2015

Despite Low Gas Prices, Gas Tax Hike Unlikely

Bloomberg January 15, 2015

Ryan Rules Out Gas Tax Increase

Patricia Cohen January 2, 2015

Gasoline-Tax Increase Finds Little Support

Reuters January 8, 2015

John Boehner Throws Cold Water On Gas Tax Increase
Increase States Gas Tax

R.I. lawmakers try to solve federal highway funding gap

States scramble as federal highway funding erodes

Strain on federal highway fund colors Minnesota roads debate

Everything’s bigger in Texas, except share of federal highway fund

Uncertainty in Nevada as federal highway funding in limbo
Highway Funding Shortfall Implications

- Roadway planning uncertainties
- Delays in roadway improvements and new construction
- Construction loan defaults/layoffs

*ARTBA House Budget Committee Report April 24, 2012 estimated $7.8B/yr. cost in transportation delays
CBO Report of 2014

- $56 billion spent in 2013 to build, operate and maintain US Highways

- Since 2008 transfers of $54 billion from general funds to meet obligations

- Estimate that in 2014 highway funds will fall $2 billion short and will not meet 2015 obligations

- Recommends include spending cuts, increase revenues (VMT, gas tax increase), and continued supplements from general funds

[Graph showing Highway Trust Fund Revenues and Expenditures]
Recommendations to Increase Gas Tax Revenues (CBO Report)

Cut Current spending

- Negative consequences for the condition performance of the nation’s highway
- Slow economic growth and employment
- Smaller amount of infrastructure would drag on economic performance
- Delays on numerous transportation projects across the country
Recommendations to Increase Gas Tax Revenues (CBO Report) cont.

Increase Revenues

Economic efficiency is enhanced when highway users are charged according to the marginal (or incremental) costs of their use

- Fuel tax and a VMT tax that accounts for the type and weight of a vehicle and the location and time of its use
- Adjust excise taxes to current price index (last increase was 1993) – one cent increase would raise $1.5 billion over next ten years
- VMT tax provides stronger incentives for efficient use of highways
Continued Transfer from General Funds

- Transfer $18 billion for 2015, $13 billion for 2016 and gradually increases to maintain current spending

- By 2024 general funds transfers would account for 1/3 of spending

- Must reduce spending in other areas or increase federal debt (allows for reduced highway taxes and helps commerce)

- Increase taxes across the board would allow for less burden on individuals (offers no incentives to conserve fuel nor fairness in road usage).
Enter the EV Era – Another Blow to Gas Tax?

2014 record sales of EV’s - increased of 33% over 2013
Issues for EV’s?

- EV’s are getting incentives far beyond what they pay into the system (state and manf. rebates/federal tax credits)

Headlines....

...Are Electric Cars To Blame for Falling Highway Fund Revenues?

...States will whack EV wallets to offset gas tax revenues

...Wisconsin Latest State to Demand EVs and Hybrids Pay Their ‘Fair Share’ for Roads

...States put fees on EVs as declining gas tax revenues hurt highways

- Solutions
  - Registration Fees – Annual Fees – Miles Driven Fees

- More Issues
  - Privacy issues
  - Extra cost to initiate programs
  - Most Fees won’t make up for lost gas tax revenues
# EV Impacts on Highway Funding

## EV sales for 2014

<table>
<thead>
<tr>
<th>Type</th>
<th>Total Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nissan Leaf</td>
<td>71,627</td>
</tr>
<tr>
<td>Smart ED</td>
<td>4,092</td>
</tr>
<tr>
<td>Mitsubishi i-Mi</td>
<td>1,857</td>
</tr>
<tr>
<td>BMW i-3</td>
<td>6,092</td>
</tr>
<tr>
<td>Ford Focus Electric</td>
<td>4,385</td>
</tr>
<tr>
<td>Honda Fit EV</td>
<td>1,069</td>
</tr>
<tr>
<td>Tesla Model S*</td>
<td>38,000</td>
</tr>
<tr>
<td>RAV4EV **</td>
<td>2,472</td>
</tr>
<tr>
<td>Chevy Spark</td>
<td>1,684</td>
</tr>
<tr>
<td>Fiat 500 e</td>
<td>4,103</td>
</tr>
<tr>
<td>Mercedes B Class</td>
<td>774</td>
</tr>
<tr>
<td>VW Golf E</td>
<td>357</td>
</tr>
<tr>
<td>Total All Years</td>
<td>136,512</td>
</tr>
</tbody>
</table>

## 2014 Average Per Car Gas Tax

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Tax</td>
<td>$0.31</td>
</tr>
<tr>
<td>Federal Tax</td>
<td>$0.18</td>
</tr>
<tr>
<td>Total Tax</td>
<td>$0.49</td>
</tr>
<tr>
<td>*Average Gas Dollars per Car</td>
<td>$2,684</td>
</tr>
<tr>
<td>Average Price Per Gallon</td>
<td>$3.53</td>
</tr>
<tr>
<td>Average Gallons Per Car</td>
<td>760.34</td>
</tr>
<tr>
<td>Average Gas Tax per Car</td>
<td>$372.57</td>
</tr>
</tbody>
</table>

$50.9 M lost tax revenue in 2014

Information obtained from American Petroleum Institute, the US BLS and the US DOT
EV Impacts on Highway Funding

$373 per vehicle in lost gas tax
136,512 EV sales = $50.9 M lost revenue
$34.9 B total gas tax revenue for 2014
Equates to 0.15% of total gas tax revenues

Questions:

What is significant impact to gas tax? 1%? 10%? 20%?

What markets are impacted by $50.9 million in lost revenue?
i.e., ....California vs Idaho

What changes need to take place for EV’s to share in tax revenue generation?

What about PEV sales and their impact? Over 1 million total is $124.1 M (estimated) which is 0.36% of gas tax revenue

Information obtained from American Petroleum Institute and the US BLS and the US DOT
EV Impacts on Highway Funding

UTC Report from Michigan Ohio University and University of Texas (Austin) UTC Reports of 2012 and 2013 suggest a significant impact within 15 years

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2030</td>
</tr>
<tr>
<td>Expected EV % of Sales</td>
<td>21%</td>
</tr>
<tr>
<td>Expected Fuel Revenue ($billions)$^1</td>
<td>13.1 - 22.9</td>
</tr>
<tr>
<td>Funds Lost due to EV market share$^1</td>
<td>18 - 56%</td>
</tr>
<tr>
<td>Cumulative Revenue ($billions)$^1</td>
<td>312-422</td>
</tr>
<tr>
<td>Cumulative Loss ($billions)$^1</td>
<td>5.4-100.7</td>
</tr>
<tr>
<td>Cumulative Loss Ratio$^1</td>
<td>5-27%</td>
</tr>
</tbody>
</table>

$^1$Includes both fuel advancement and non advancement of ICE's
EV Tax Measures to Support Highway Funding

EV state specific policies to increase tax base

<table>
<thead>
<tr>
<th>State</th>
<th>EV Specific Measures</th>
<th>Tax Revenue Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>VMT</td>
<td>Under review</td>
</tr>
<tr>
<td>Oregon</td>
<td>Mileage Based Fee</td>
<td>Pilot Program</td>
</tr>
<tr>
<td>Washington</td>
<td>Registration Fee $100</td>
<td>$128 K</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Vehicle Reg. Fee</td>
<td>Est $1.5 M</td>
</tr>
<tr>
<td>Minnesota</td>
<td>VTM</td>
<td>No data available</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Annual Reg Fee $50</td>
<td>No data available</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>Annual Reg Fee $50</td>
<td>Est $4 M</td>
</tr>
<tr>
<td>Indiana</td>
<td>Annual Reg Fee $100</td>
<td>Proposed fee</td>
</tr>
<tr>
<td>Michigan</td>
<td>Annual Reg Fee $100</td>
<td>Proposed fee</td>
</tr>
<tr>
<td>Colorado</td>
<td>Annual Reg Fee $50</td>
<td>No data available</td>
</tr>
<tr>
<td>Virginia</td>
<td>Annual Reg Fee $64</td>
<td>Repealed</td>
</tr>
<tr>
<td>Nebraska</td>
<td>Annual Reg Fee $75</td>
<td>No data available</td>
</tr>
</tbody>
</table>

From National Conf of State Legislatures

...only estimated to produce $2–$8 Million in revenue

Non-specific to EV’s

- States considers replacing gas tax with per-mile charges (Oregon, California, Minnesota, Nevada, others to follow)
- Tolling as a Source of Highway Funding (charge for usage)
EV Measures to Support Highway Funding

*Options to fund the highways and the technology needed....

<table>
<thead>
<tr>
<th>Subject</th>
<th>Finance Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Efficiency</td>
</tr>
<tr>
<td>Existing Fuel Tax</td>
<td>Weak</td>
</tr>
<tr>
<td>MBUF</td>
<td>Strong</td>
</tr>
<tr>
<td>Technology Option</td>
<td></td>
</tr>
<tr>
<td>On-board diagnostic Units(OBD II)</td>
<td>Moderate</td>
</tr>
<tr>
<td>OBDII/Cellular</td>
<td>Strong</td>
</tr>
<tr>
<td>Fine – resolution GPS</td>
<td>Very Strong</td>
</tr>
</tbody>
</table>

Need to consider privacy and costs to run new programs and their vulnerability.....

*University of Minnesota Research
EV Tax Measures to Support Highway Funding

- C2ES Website addresses EV specific transportation funding issues
- Reports PEV/EV actions state by state
- PEV Action Tool-Share resources and lessons learned
- Details policy and laws

http://www.c2es.org/initiatives/pev/maps/pev-specific-measures-infrastructure-funding
Nation's First VMT Fee Bill Passed By Oregon Legislature (not EV specific)

- Reporting system must offer an open architecture
- Government cannot mandate the use of GPS technology
- Motorists must have choices of mileage reporting methodologies
- Voluntary 5,000 vehicle roll-out for July 2015
- 1.5 cents per mile road usage charge for travel on public roads
  - No more than 1,500 vehicles with a fuel efficiency rating of less than 17 miles per gallon (mpg)
  - No more than 1,500 vehicles with a fuel efficiency rating of between 17 and 22 mpg
Questions?

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Thank you.