
ISSUE REVIEW

Fiscal Services Division

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Electric Vehicle and Hybrid-Electric Vehicle Registration Fees and Excise Taxes

ISSUE

This **Issue Review** will study the impact of electric vehicle (EV), plug-in hybrid-electric vehicle (PHEV), and hybrid-electric vehicle (HEV) registration fees on the Road Use Tax Fund (RUTF). EVs do not contribute significant road usage fees in the form of motor fuel excise tax revenue, and several states have imposed registration fees on EVs and HEVs in addition to their annual registration fees to make up for lost revenue. In 2019, Iowa joined the group of states implementing EV and PHEV fees to counteract the loss of revenue. This **Issue Review** will:

- Provide background information on EVs and PHEVs and revenue from motor fuel excise taxes as a user fee in Iowa, and how EVs and HEVs impact this revenue.
- Explore the fiscal impact of fees in Iowa to both the State and vehicle owners.
- Examine legislation in other states that currently have additional registration fees for these vehicles.

Except where noted, EV and HEV registration fees discussed in this **Issue Review** are in addition to any annual registration costs imposed on vehicles.

AFFECTED AGENCIES

Iowa Department of Transportation (DOT)

Iowa Department of Revenue (IDR)

County Treasurers

CODE AUTHORITY

Iowa Code chapters [312](#), [312A](#), [321](#), [452A](#)

Iowa Code sections [452A.3](#), [452A.41](#), [321.105](#), [321.105A](#), [321.109](#), [321.117](#)

TYPES OF ELECTRIC VEHICLES

EVs have been in existence since before the Ford Model T; however, it is only recently that advances in technology and infrastructure have made EVs competitive for the public to purchase or lease. EVs are generally recharged from an external electrical power source.

Vehicle Abbreviations Used in This **Issue Review**

EV:	Electric Vehicle – all electric with a battery storage system
HEV:	Hybrid-Electric Vehicle – uses drivetrain to assist in powering vehicle
PHEV:	Plug-in Hybrid-Electric Vehicle – has gas engine as back up when battery is depleted
PEV:	Includes both EV and PHEV

HEVs were introduced commercially in the U.S. in 1997. HEVs combine a conventional motor with some form of onboard electric propulsion. The electric motor in HEVs is generally powered from storage of the kinetic energy produced by the vehicle. Not all HEVs can be propelled by an electric motor alone, and may only achieve limited fuel consumption savings.

PHEVs were introduced commercially in the U.S. in 2010. PHEVs use a battery that can be recharged using an external energy source. The gas motor is only designed to work as a backup when the battery is depleted.

Each of these technologies is designed to reduce the vehicle owner's motor fuel consumption to some degree. EVs do not use any motor fuel at all, while the fuel consumption of HEVs can vary widely. The reduced motor fuel consumption also reduces user fees, in the form of motor fuel excise taxes, which are deposited into the RUTF.

Impact of Electric Vehicles on Road Use Tax Fund

DOT data shows that there are 2.4 million registered automobiles and multipurpose vehicles in Iowa. In April 2017, there were 397 EVs registered in the State. As of May 2019, annual registrations in Iowa for EVs were up to 1,170, an increase of 294%. EV owners tend to pay more in annual registration costs than non-EV owners. This is due to the retail list price of EVs and the age of the fleet. List prices of EVs may decrease over time as the cost of the technology decreases, and annual registration fees will decrease as the EV fleet ages.

The RUTF and the structure for funding road construction and maintenance in Iowa was established in 1949 Iowa Acts, chapter [122](#), with the creation of the RUTF. The RUTF formula distributes the majority of road funding by allocating funds to the State, counties, and municipal authorities. Revenue includes user fees such as motor fuel excise taxes, annual vehicle registrations, new vehicle registrations, and several other sources. Per the Constitution of the State of Iowa, Article VII, section 8, the majority of these revenue funds are constitutionally mandated to be used on the highway system.

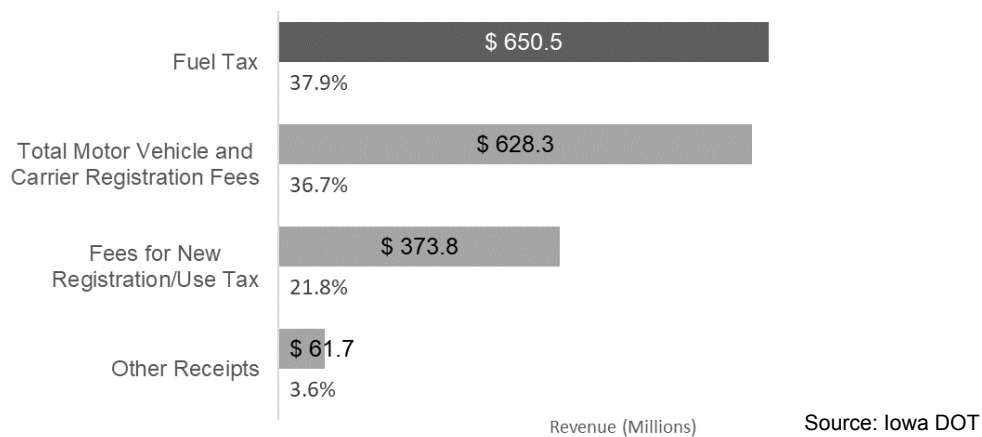
“All motor vehicle registration fees and all licenses and excise taxes on motor vehicle fuel, except cost of administration, shall be used exclusively for the construction, maintenance and supervision of the public highways exclusively within the state or for the payment of bonds issued or to be issued for the construction of such public highways and the payment of interest on such bonds.”

In Iowa, local authorities may bond or use other revenue sources besides user fees for road construction and maintenance. However, the State usually does not make General Fund appropriations or bond at the State level for highways.

Motor fuel taxes alone provided \$650.5 million, or 37.9%, of all revenue deposited into the RUTF and TIME-21¹ Fund in FY 2019. The following chart shows approximate RUTF and TIME-21 revenues by source for FY 2019. In total, user fees from excise taxes and annual registrations account for 74.6% of all revenue at the State level.

¹ The Transportation Investment Economy in the 21st Century (TIME-21) Fund was established in 2008. Motor vehicles registration fees after \$392.0 million are directed toward the TIME-21 Fund until the fund reaches a total of \$225.0 million in funds. The TIME-21 Fund distributes moneys at different percentages than the RUTF.

Revenue Deposited into the RUTF and TIME-21 Fund by Source



Iowa periodically examines its own sources of revenue to the RUTF. Under Iowa Code section [307.31](#), the DOT is required to submit a report every five years that reviews revenue levels of the RUTF, and the sufficiency of that revenue for construction and maintenance of the State's highways. The [2011](#) report recommended changes to how EVs were registered. Prior to the 2013 Legislative Session, the annual EV registration fee was a flat rate of \$25 per year for vehicles up to five years old, and \$15 for vehicles that were more than five years old. This rate had been in effect since 1927. [2013 Iowa Acts, chapter 140](#) repealed Iowa Code section [321.116](#). EV registration fees were then based upon the same weight and value formula that is used for nonelectric vehicles. In FY 2014, there were 224 EVs registered in the State that provided additional estimated revenue of \$31,800 in registration fees. The [2016](#) DOT report noted that challenges still exist to capture fuel taxes associated with EVs, as there are little to no motor fuel excise taxes levied on such vehicles in Iowa. As required by the Legislature, in 2018, the DOT compiled a [report](#) on the Impact of Electric Vehicles to the RUTF.

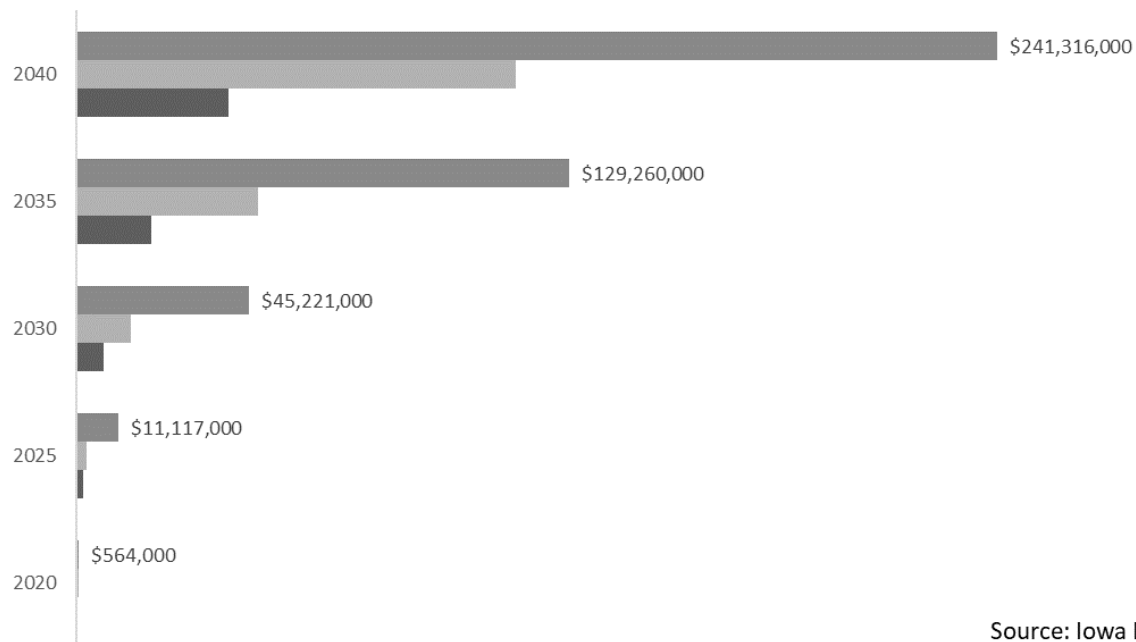
The report made three recommendations to the Legislature:

- Add a \$0.026 per kilowatt hour excise tax for charging electric vehicles at nonresidential charging locations.
- Add a supplemental registration fee for passenger electric vehicles. The fee would be \$130 per year for EVs, \$65 per year for PHEVs, and \$9 per year for electric motorcycles.
- Add a hydrogen fuel excise tax of \$0.65 per diesel gallon equivalent (2.49 pounds of hydrogen) for hydrogen fuel cell EVs.

The suggestions for the electric vehicle fees were based on average fuel tax revenue of \$154 per vehicle based on:

- An average of 11,500 miles driven per year.
- Fuel economy of 22 miles per gallon.
- A fuel tax rate of 29.5 cents per gallon.

Reduction in RUTF due to EV and PHEV
Low, Medium, High Impact Adoption Scenarios



Source: Iowa DOT

	2020	2025	2030	2035	2040
■ High Scenario	\$564,000	\$11,117,000	\$45,221,000	\$129,260,000	\$241,316,000
■ Medium Scenario	\$520,000	\$2,684,000	\$14,207,000	\$47,748,000	\$115,200,000
■ Low Scenario	\$488,000	\$1,858,000	\$7,083,000	\$19,603,000	\$39,975,000

The preceding chart shows the possible impacts to the RUTF in low, medium, and high impact adoption scenarios of EV and PHEVs. In FY 2019, approximately \$650.5 million in fuel taxes was collected. The high impact scenario for electric vehicle adoption above for 2020 reflects approximately 0.1% of fuel tax revenue.

In [2019 Iowa Acts, chapter 151](#), the Legislature instituted EV registration fees for EVs, PHEVs, battery motorcycles, and plug-in motorcycles. Furthermore, the legislation imposed a fee on electricity used as a fuel obtained from a source outside of a personal residence as well as for hydrogen used as fuel. The fees and implementation dates are listed in **Table 1** below.

Table 1

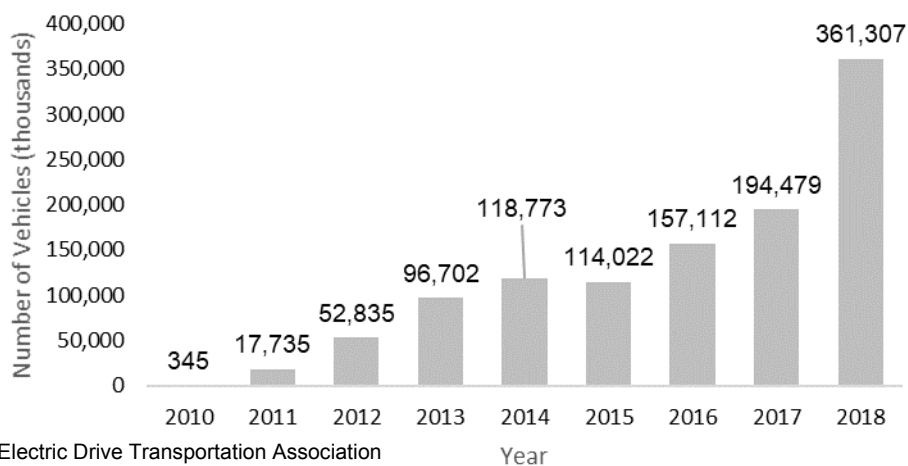
Registration Fees and Implementation Dates					
Date Implemented	EV	PHEV	Motorcycles	Hydrogen	Excise Tax
January 2020	\$65.00	\$32.50	\$4.50	\$0.65 per gallon	
January 2021	\$97.50	\$48.75	\$6.75		
January 2022	\$130.00	\$65.00	\$9.00		
July 2023					\$0.026 per kWh

CURRENT SITUATION

Several states offer tax credits or other incentives for consumers who purchase an EV or business installation of a charging station. These states account for the majority of EVs registered nationwide. The State of Iowa does not currently offer any incentives for consumers who purchase an EV.

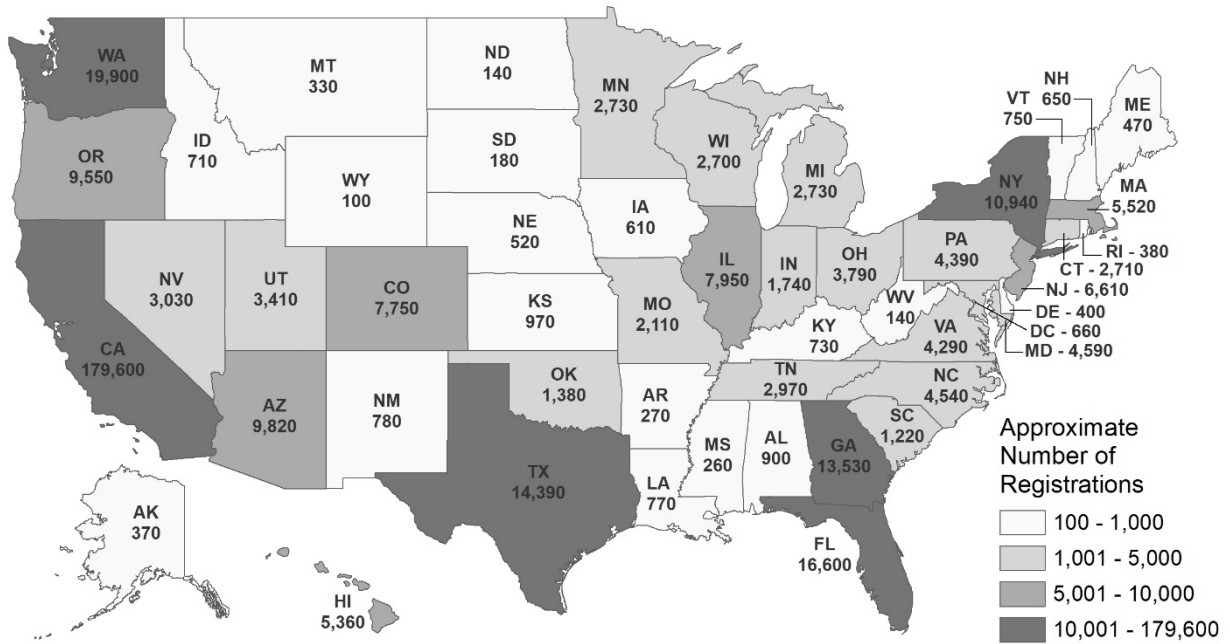
In 2019, MidAmerican Energy Company began offering a \$500 [rebate](#) for consumers who purchase an EV in Iowa. More information on incentives offered for EVs is available in the National Conference of State Legislatures (NCSL) report on [State Efforts To Promote Hybrid and Electric Vehicles](#) as well as the United States Department of Energy's [Alternative Fuels Data Center](#).

National Sales of EV and PHEV Vehicles



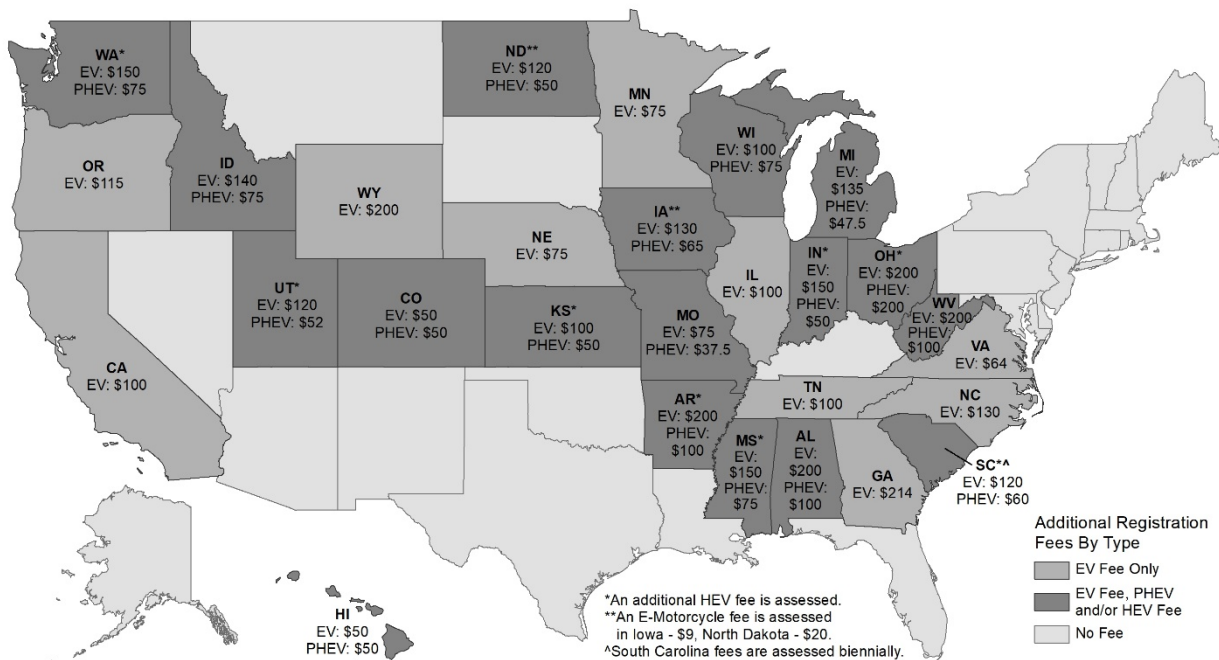
As electric vehicle sales increase, states have explored alternatives for capturing revenue lost from reduced payment of motor fuel excise taxes. As of September 2019, 28 states have enacted legislation adding additional vehicle registration fees for EVs. Eight of those states — Alabama, Arkansas, Illinois, **Iowa**, Kansas, North Dakota, Ohio, and Wyoming — enacted or updated EV or HEV legislation in 2019. See **Attachment A** for a summary version of EV legislation passed by state by year. These additional vehicle registration fees range from \$30 to \$214 per year. The map and charts on the following pages show EV and HEV registration fees by state. Please note that the fees listed in the map and charts are in addition to any annual registration fees for each vehicle, except for in Kansas. Since September 2017, 12 state legislatures have passed laws regarding registration fees on EVs.

Approximate Plug-in Electric Vehicle (PEV) Registrations by State — 2017



Source: National Renewable Energy Lab (NREL) derived data from IHS Markit on light-duty vehicle registrations in 2017.

Additional EV and Hybrid Vehicle Registration Fees by State — 2019



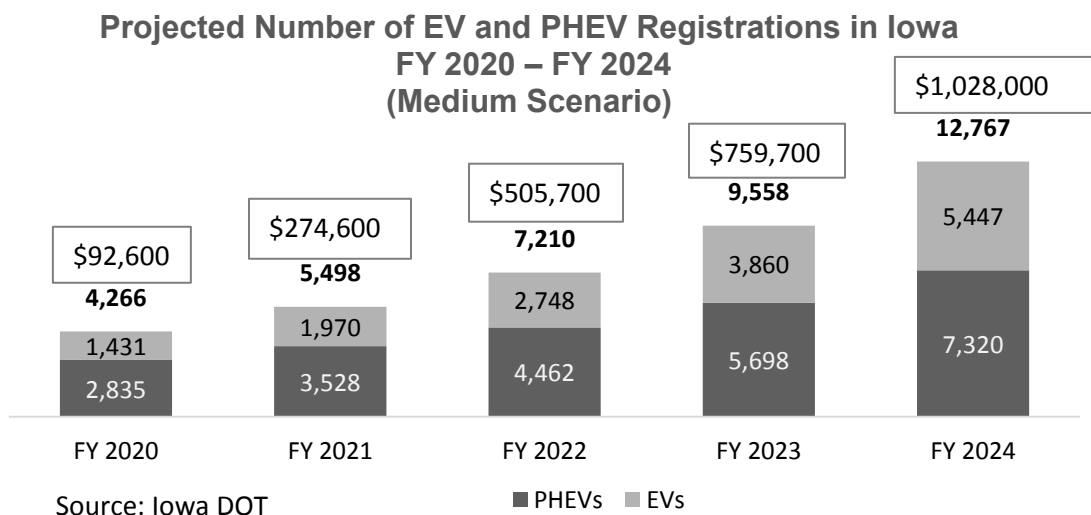
Source: American Road & Transportation Builders Association's Transportation Investment Advocacy Center; Alternative Fuels Data Center.

Legislation from 2019

Nine states passed legislation for additional EV registration fees in 2019, bringing the total number of states that have additional fees to 28. Of those nine states, three included additional HEV fees in their legislation. Two of the states, Washington and Wyoming, increased their previously established registration fees. The fiscal impact for each state varies due to the estimated number of vehicles impacted.

EV, PHEV, and HEV Fees

Out of the 28 states that have additional registration fees for EVs, 18 include annual fees for PHEVs and 8 include an HEV fee. Some states may not consider HEV fees due to the wide range in fuel economy of hybrid vehicles. Kansas, for example, treats all hybrids alike for registration fee purposes. Ohio, on the other hand, charges the same fee for EVs and PHEVs but includes a different fee for HEVs. **Iowa** implemented separate fees for EVs and PHEVs but not HEVs.



SUMMARY

Iowa's registered vehicles and out-of-state vehicles will contribute an estimated \$1.665 billion to the RUTF and TIME-21 Fund in FY 2020. Of that total, an estimated \$649.4 million will be from motor fuel excise taxes. As stated, fuel tax revenues lost from potential EVs and PHEVs amount to less than 0.1% of all fuel taxes. EV and HEV registration fees are increasingly utilized by states as a way to offset lost fuel taxes from these vehicles. Revenue generated can vary, as fleet numbers of both EVs and HEVs range widely among states.

For comparison, **Table 3** compares four vehicles with somewhat similar registration fees for fuel tax revenue or additional registration fee for PHEVs and EVs. These are estimated based on **Table 2** assumptions. The DOT vehicle report is based on DOT examples from its 2018 [report](#).

Table 2

Assumptions	
Miles Per Year	11,500
Type of Miles Per Gallon	All Highway
Tax Per Gallon	\$ 0.295
EV	
Charging Outside Home	15%
Tax Per kWh	\$ 0.026
Additional Fee	\$ 130.00
PHEV	
Charging Outside Home	15%
Tax Per kWh	\$ 0.026
Additional Fee	\$ 65
PHEV Driving	55%
Gasoline Driving	45%
PHEV Miles	6,325
Gasoline Miles	5,175

Table 3

Example of Fuel Tax/Fuel Tax Replacement Fees after July 1, 2023						
Vehicles	Gasoline	Gasoline	HEV	PHEV	EV	
Car	DOT Report**^	Honda Accord 2019	Honda Accord Hybrid 2019	Toyota Prius Prime 2019	Nissan Leaf 2019	
List Price**		\$ 30,200.00	\$ 31,800.00	\$ 33,400.00	\$ 30,000.00	
Weight (lbs)**		3,200	3,400	3,400	3,500	
Registration Fee**	\$ -	\$ 315	\$ 332	\$ 348	\$ 314	
Additional Fee	\$ -	\$ -	\$ -	\$ 65.00	\$ 130.00	
Highway MPG	22	38	48	53		
Gallons Used	523	303	240	98		
Gas Tax	\$ 154.20	\$ 89.28	\$ 70.68	\$ 28.80	\$ -	
Highway kWh/100 miles				28	30	
kWh tax				\$ 0.026	\$ 0.026	
kWh used				266	517.5	
kWh tax paid	\$ -	\$ -	\$ -	\$ 6.91	\$ 13.46	
Total Paid in Fuel						
Tax/Fuel Tax	\$ 154.20	\$ 89.28	\$ 70.68	\$ 100.71	\$ 143.46	
Replacement						
* From DOT, industry average for light duty vehicles (includes cars, SUVs, passenger vehicles such as pickups, etc.)						
^Combined MPG						
**DOT ARTS Registration Fee Estimator						

Attachment A

Annual Registration Fee by State

State	EV	PHEV	HEV	Year Passed
MO	\$ 75	\$ 38		1998
NE	\$ 75			2011
WA	\$ 150	\$ 75	\$ 75	2012
CO	\$ 50	\$ 50		2013
NC	\$ 130			2013
VA	\$ 64			2014
GA	\$ 214			2015
ID	\$ 140	\$ 75		2015
MI	\$ 135	\$ 48		2015
CA	\$ 100			2017
IN	\$ 150	\$ 50	\$ 50	2017
MN	\$ 75			2017
OR	\$ 115			2017
SC*	\$ 120	\$ 60	\$ 60	2017
TN	\$ 100			2017
WI	\$ 100	\$ 75		2017
WV	\$ 200	\$ 100		2017
MS	\$ 150	\$ 75	\$ 75	2018
UT	\$ 120	\$ 52	\$ 20	2018
AL	\$ 200	\$ 100		2019
AR	\$ 200	\$ 100	\$ 100	2019
HI	\$ 50	\$ 50		2019
IA	\$ 130	\$ 65		2019
IL	\$ 100			2019
KS	\$ 100	\$ 50	\$ 50	2019
ND	\$ 120	\$ 50		2019
OH	\$ 200	\$ 200	\$ 100	2019
WY	\$ 200			2019
Median	\$ 120	\$ 59	\$ 63	
Average	\$ 125	\$ 71	\$ 63	
* South Carolina Fee is Biennial.				
Median and Average are based on annualizing SC fee.				

Sources: American Road & Transportation Builders Association's Transportation Investment Advocacy Center; Alternative Fuels Data Center

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