



# Legislative White Paper Roadway Surcharge for Electric Vehicles in Ohio

**Prepared by:** Mayor Ben Kessler, City of Bexley  
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The electric vehicle (EV) surcharge specified by House Bill 62 overcharges owners of electric vehicles, based upon fuel equivalent consumption of mass market EVs. Traditionally, the gas tax is a consumption tax that naturally impacts inefficient vehicles more than efficient vehicles. In the case of the proposed EV surcharge, this corollary that otherwise exists with all other classes of vehicles is disregarded.

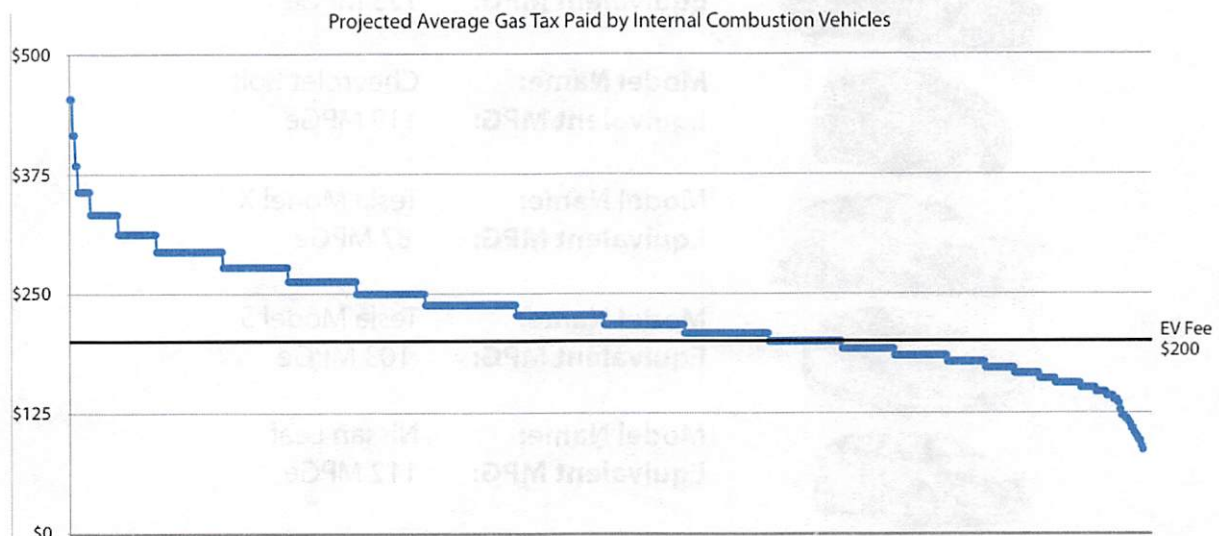
The current proposal charges EV owners significantly more than would be paid by many conventional internal combustion models, including traditionally less efficient models such as large sedans and small SUVs. Charging EV owners at a higher rate than is paid by many mainline internal combustion engines is inconsistent with this consumption tax, and inequitable.

Based on average miles driven by Ohio drivers, and the average MPGe of electric vehicles, a fair share fee for EV drivers would be \$54.57 per year (see calculations below). The current proposal at \$200 would require the driver of an EV to drive more than 46,000 miles per year based upon the average MPGe of the top selling EVs. The \$200 proposed fee overcharges EV drivers and penalizes an emerging technology which is being produced and developed by numerous major manufacturers/employers in Ohio.

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### Consumption Equivalent Price Calculation:

Average MPGe of top 5 selling EVs:	108.8 MPGe (source: US Dept. of Energy)
Average Miles/Year Driven by Ohio Drivers:	12,906 (source: US Dept. of Transportation, 2015)
Fuel Tax Proposal:	\$0.387 per gallon (source: HB 62)
Implied EV fee:	\$45.91



Based on EPA MPG figures from 1,215 vehicles in 2019 model year and average Ohio miles driven of 12,906

**A selection of internal combustion vehicles and their estimated gas tax @ \$0.387/gallon based on EPA MPG figures at 12,906 average miles driven by Ohio drivers:**

Hyundai Ioniq Blue	\$86.11	Ford Fusion Hy	\$118.92
Toyota Prius Eco	\$89.19	Chevrolet Cruze	\$134.99
Toyota Camry Hybrid	\$96.05	Honda Fit	\$138.74
Honda Insight	\$96.05	Honda Civic	\$138.74
Kia Niro	\$99.89	Toyota Corolla	\$138.74
Honda Accord Hy	\$104.05	Jaguar XE	\$138.74
Chevrolet Malibu Hy	\$108.58	Hyundai Elantra	\$142.70
Toyota Avalon Hy	\$113.51	Toyota Yaris	\$142.70
Hyundai Sonata Hy	\$118.92	Nissan Versa	\$146.90

**A selection of internal combustion vehicles that will pay less than EV owners based on EPA MPG figures and average miles driven by Ohio drivers:**

Infiniti Q50	Audi A6	BMW 530i	Audi A3	Subaru Impreza	Kia Forte
Mercedes E 300	Audi A7	Volvo S90	Mazda CX-3*	Toyota Corolla	Mazda2
Toyota Avalon	Cadillac CTS	Volvo V90	Mercedes CLA	Honda Accord	Mitsu. Mirage
Chevrolet Impala	Lexus NX 300*	Buick Encore	Buick Lacrosse	Honda HR-V*	Lexus UX
Mercedes AMG GLA	VW Tiguan*	Infiniti QX50*	Subaru Legacy	Honda CR-V*	Ford Fusion Hy
Ford F150*	Range Rover Evoque*	Mercedes GLA 250	VW Passat	Hyundai Kona	Hyundai Sonata Hy
Ford Transit Van*	Audi TT	Volvo XC40*	Nissan Rogue*	Toyota RAV4*	Kia Optima Hy
Nissan NV200 Cargo Van*	Mercedes AMG CLA	Acura MDX*	Jaguar F-Pace*	Lexus RX AWD*	Lincoln MKZ Hy
Buick Envision*	Mercedes CLS 450	BMW z4	Subaru Crosstrek	Chevrolet Sonic	Toyota Avalon Hy
Ford Edge*	BMW X2*	Mercedes A 220	Subaru Forester*	Mazda CX-3*	Lexus ES
Hyundai Santa Fe*	Buick Regal	Acura ILX	Mazda MX-5	Hyundai Sonata	Toyota Prius
Hyundai Tucson*	Chevrolet Malibu	Jaguar XE	Fiat 500	Kia Optima	Toyota Camry Hy
Jeep Renegade*	Lexus ES 350	Volvo S60	Mini Cooper	Honda Fit	Honda Insight
Porsche Boxster	Lexus GS 300	Acura RLX	Ford Fiesta	VW Golf	Kia Niro
Porsche Cayman	BMW X1*	Jaguar XF	Lexus LC 5000h	Lexus NX	Hyundai Ioniq Blue
Porsche 911 Carrera	Ford Escape*	Cadillac CT6	Audi A4	Chevrolet Cruze	
Chevrolet Camaro	Jeep Cherokee*	Volvo V60	BMW 3 series	Honda Civic	
Ford Mustang	Jeep Compass*	Buick Encore*	Hyundai Veloster	Hyundai Accent	
Infiniti Q60	Acura TLX	Chevrolet Equinox*	Nissan Versa	Kia Rio	
Cadillac ATS	Infiniti QX30*	GMC Terrain*	Nissan Altima	Chevrolet Malibu	
Genesis G70	Audi A5	Mazda CX-5*	Nissan Sentra	Jaguar XE	

\* Sport Utility Vehicle, Crossover, Truck, or Van

**Gas Mileage Equivalency of Top 5 Selling Evs in 2019**



**Model Name:** Tesla Model 3  
**Equivalent MPG:** 123 MPGe



**Model Name:** Chevrolet Bolt  
**Equivalent MPG:** 119 MPGe



**Model Name:** Tesla Model X  
**Equivalent MPG:** 87 MPGe



**Model Name:** Tesla Model S  
**Equivalent MPG:** 103 MPGe



**Model Name:** Nissan Leaf  
**Equivalent MPG:** 112 MPGe

**Average Gas Mileage Equivalency: 108.8 MPGe**



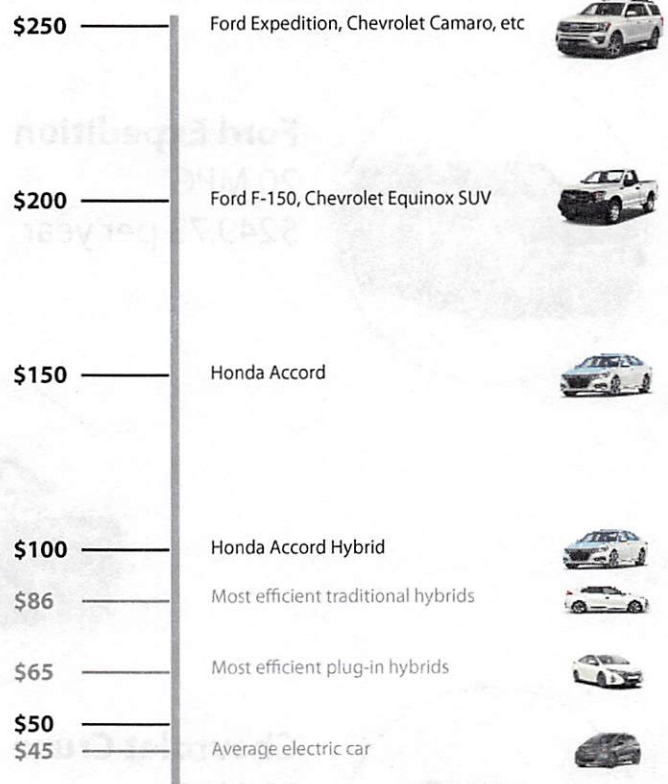
**EV Recommendation:**

If the State continues to assess roadway use tax as a consumption-based gas tax, then new fuel-efficient technologies should be taxed at a rate which correlates to consumption. A \$45 per year fee would correlate to consumption for the average electric vehicle on the market today.

If the State wishes to require a minimum charge on all vehicles regardless of consumption, then a fee should be considered that is inline with the most efficient non-plug-in internal combustion vehicle. In 2019, the Hyundai Ioniq is the most efficient internal combustion vehicle without any additional outside energy inputs, and would pay a total gas tax of \$86 based on average miles driven in Ohio.

As this is a new fee to EV owners, the State should consider phasing the fee in over two years, similarly to the gas tax phase-in.

**Expected Gas Tax Receipts Based on Average MPG and Average Miles Travelled in Ohio:**



**Plug-In Hybrid Recommendation:**

Efficiencies of plug-in models vary widely, from being as or less efficient than the most efficient internal combustion engine (ex. Volvo XC90, Mercedes GLE), to being as or more efficient as some full EV models (ex. Prius Prime). A flat fee formula is difficult to apply rationally and equitably to plug-in hybrid models. The average of all 2019 plug-in hybrids on market is 86.54 MPG, equiv. to a \$57 gas tax. This flat fee proposal suggests a phased-in fee of \$30 to compensate for the difference between the average plug-in hybrid and the most efficient internal combustion engine vehicles.

**Recommendation - Electric Vehicles:**

**Proposed EV Fee, Year One: \$43**

**Proposed EV Fee, Year Two: \$86**

**Proposed EV Fee, Future Years:** Calculate Based on most efficient internal combustion model in market

**Recommendation - Plug-in Hybrid Vehicles:**

**Plug-In Hybrid Fee, Year One: \$15**

**Plug-In Hybrid Fee, Year One: \$30**

**Plug-In Hybrid Fee, Future Years:** Calculate Based on half of EV fee.

# Exhibit: A Sampling of Annual Gas Tax by Vehicle

Based on \$0.387 gas tax, 12,906 Ohio average miles driven, and DOT fuel efficiency stats



## **Ford Expedition**

20 MPG

\$249.73 per year



## **Ford F-150**

25 MPG

\$199.78 per year



## **Chevrolet Cruze**

33 MPG

\$151.35 per year



## **Honda Civic**

36 MPG

\$138.74 per year



## **Toyota Prius Eco**

56 MPG

\$89.19 per year

What Should the driver of an Electric Vehicle pay?