Electric Vehicles: Driving Tennessee's Future

The Transportation Modernization Act of 2023 (TMA) is an important first step in enabling Tennessee's Department of Transportation (TDOT) to address critical infrastructure needs across the state with innovative tools like public-private partnerships, choice lanes, and new project-delivery models. While the TMA makes its way through the legislature, we take a look at one of the key elements of the plan -- increasing registration fees on electric vehicles and hybrids.

In this brief, we explain the proposed new fee structure, discuss how that compares to other states across the country, and identify additional opportunities for policymakers to consider as we work towards addressing today's infrastructure needs and prepare our state for the future.

The TMA Identifies New Revenue Sources to Address Declining Gas Tax Revenues

TDOT anticipates a $13.5 billion revenue gap by 2040.

TDOT estimates needing **$26 billion** to address congestion across the state.(i) Yet they anticipate having only $500 million available per year, resulting in a **$13.5 billion revenue gap** by 2040.(ii) In addition to federal funding, the largest source of TDOT's revenue comes from "highway user fees," otherwise known as gas taxes.(iii)

Tennessee drivers pay either gas taxes or a one-time upfront fee, depending on the type of vehicle they drive, with the revenues helping to fund transportation infrastructure across the state.

Tennessee Highway User Fees

The annual average highway user tax paid by Tennessee drivers.(iv)

Gas-powered vehicles: **$164.13** in state gas taxes

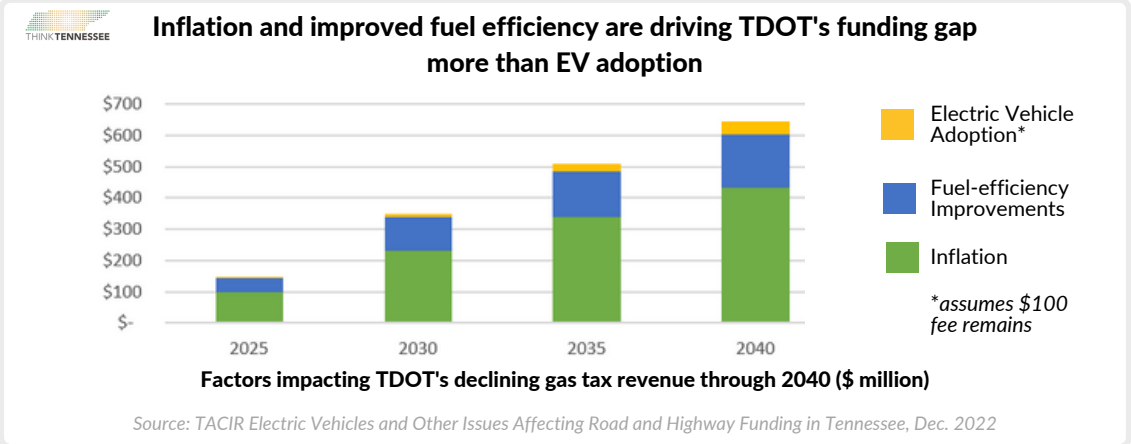
Battery electric vehicles (BEVs): **$100** annual vehicle registration fee

Hybrid cars: **$61** in gas taxes

Declining revenue from gas taxes is affected by multiple factors.

As is true across the country, gas tax revenues are declining and are no longer meeting infrastructure needs. By 2030, the gas tax in Tennessee is estimated to generate **$350 million less than anticipated**.(v)

The projected gap is a factor of multiple issues, including: the impact of inflation on construction and maintenance costs (65%); increasing fuel efficiency of gas-powered cars (32%); and increased adoption of electric vehicles (3%).



The TMA increases existing electric vehicle fees and introduces new fees on hybrid vehicles.

The TMA attempts to address this revenue gap in part by increasing fees on battery electric vehicles (BEVs) and adding a new fee for plug-in hybrid electric vehicles (PHEVs) and conventional hybrids ("hybrids"). Currently, BEV drivers in Tennessee pay an annual registration fee of $100, and drivers of PHEVs and hybrids do not pay an additional EV registration fee.

The TMA introduces a new fee structure for all three types of electric vehicles:

BEV registration fees will increase to **$200 for the first two years (2024-2026)** and then further increase to **$274 from 2026-2027**. Starting in 2027, the fee will be indexed to inflation and can be raised or lowered by up to 3% per year.

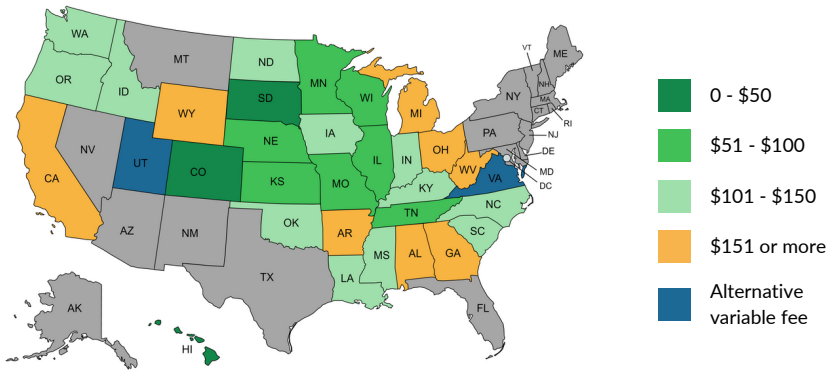
Conventional hybrids and PHEVs will have a new **$100** registration fee.

The New EV Fees Would be Among the Highest in the Country

EV fees are a common policy tool to supplement lost gas tax revenues.

Over 60% of states -- 32, including Tennessee -- have a BEV fee, while only 18 have registration fees for PHEVs, including 10 states with fees for conventional hybrids.(vi) Average fees are $127.23 for BEVs, $74.73 for PHEVs, and $56.86 for conventional hybrids.(vii)

Tennessee is one of 32 states with an Electric Vehicle Fee



Source: TIAC, "State Electric Vehicle Fees," Jan. 2023.

Annual Average State Electric Vehicle Fees

BEV Fee: $127.23

PHEV Fee: $74.73
Hybrid Fee: $56.86

Proposed TMA Fees:
BEV: $200 (2024-2026)
$274 (2026-2027)
Hybrid/PHEV: $100

Tennessee's new fees would be above the national average and among the most expensive.

While most state's BEV fees are between $50 and $150, five states currently have a $200 fee, and fees in two -- Georgia and Michigan -- may be higher depending on the weight of the vehicle. The increased BEV fee of $274 beginning in 2026 is more than twice the current national average. The new $100 hybrid fee would be above the national average for PHEVs and nearly double the average for conventional hybrids.

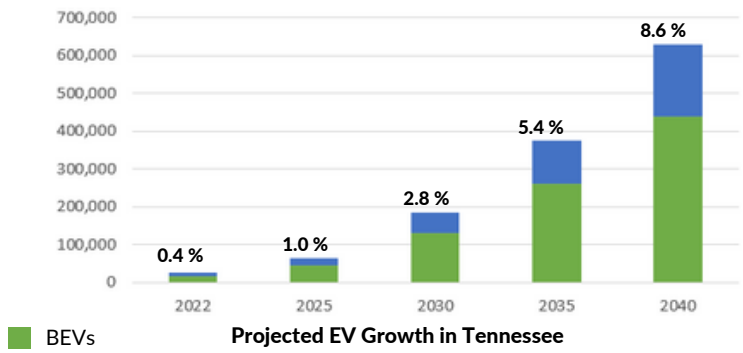
While a Good First Step, Additional Measures Can Help Build on the TMA

Projected EV fee estimates will only make up a small portion of the projected revenue loss.

EVs currently account for less than 1% of registered vehicles in Tennessee (0.4% in 2022) and are estimated to reach only 8.6% of vehicles by 2040. (viii) As a result, they account for only a small amount of lost revenue -- $**1.7 million** in 2022 and between $9.7 million to $15.8 million by 2030 (just **1.8% to 2.9% of TDOT's anticipated annual revenue gap**).(ix)

The new EV fees would generate only a fraction of the revenues needed. If EV adoption trends continue at the projected rate -- which is not guaranteed -- BEV ownership is expected to reach 45,088 in 2025. A $200 fee would generate $9.0 million in revenue, while the $274 fee would generate just $3.3 million more.

EVs are growing rapidly, but they still make up a small portion of Tennessee's vehicles



Projected EV Growth in Tennessee

Source: TACIR Electric Vehicles and Other Issues Affecting Road and Highway Funding in Tennessee, Dec. 2022

Additional alternative policies can help to meet the revenue gap, without hindering EV demand.

As many other states also struggle with declining gas tax revenues, jurisdictions are looking for sustainable long-term revenue sources and new ways to lower costs and implement projects more efficiently. Strategies include: implementing mileage-based user fees, deploying innovative project delivery models, and increasing the capacity of existing roadways by investing in advanced technologies, improving transit options, and developing transportation demand management (TDM) programs.

Policy Recommendations

As we move into implementation, we share recommendations for policymakers to consider as we build on these important first steps.

Continue to consider additional revenue streams to help replace declining gas tax revenues.

Along with choice lanes, public private partnerships, and project delivery opportunities included in the TMA, policymakers should **explore additional alternatives** to help address declining gas tax revenues long-term, including **mileage-based user fees**.

Keep the BEV fee aligned with other states and consider alternative payment options.

Tennessee's new EV fees will be among the most expensive in the nation. Before increasing the BEV fee to $274, policymakers should continue to **monitor national trends** and **keep the fee closer to the national average**.

Annual EV registration fees are upfront costs which can be challenging for working families. Alternative policies in two states help address this challenge by **allowing drivers to pay the annual fee over two installments** (South Carolina) and offering drivers an option to be **charged according to their miles driven** (Utah).(x)(xi)

Consider incentives to encourage Tennessee adoption of Tennessee-made EVs.

Tennessee has made major investments in EV production, totaling at least **$1.1 billion in incentives** to attract EV and EV battery production plants that directly **employ over 20,000 Tennesseans**.(xii)

Currently, demand for EVs is overwhelmingly concentrated in states that incentivize adoption. Nationally, EVs are projected to be 30% of new vehicles sold in 2030 and 50% of vehicles sold by 2040. EV registrations in Tennessee would **need to double current projections** to meet these national trends.

To encourage Tennessee's adoption of EVs, policymakers could consider timing consumer incentives like a **temporary sales tax exemption** on EVs and/or EV equipment with the opening of Tennessee-based manufacturing plants, such as Blue Oval City.

In addition to supporting Tennessee's economy, increased EV adoption can help reduce pollution, providing health benefits and financial savings for local communities across our state. Tennessee currently has the fifth-worst level of air pollution in the country.(xiii) Widespread adoption of EVs in Tennessee would result in a staggering **$24.9 billion in public health benefits** (*e.g.*, fewer premature deaths, asthma attacks, and lost workdays) over the next 30 years.(xiv)

Encouraging EV adoption in Tennessee, particularly of Tennessee-made electric vehicles, provides substantial benefits to our state's economy, improves the lives of Tennesseans, and helps prepare our state for the future.

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(i) Tennessee Department of Transportation. (Feb. 14, 2023). Build with Us White Paper. See https://www.tn.gov/content/dam/tn/tdot/build-with-us/2-23%20Challenges%20and%20Solutions%20White%20Paper.pdf.
(ii) Ibid.
(iii) Tennessee Department of Transportation. (Aug. 26, 2022). Work Program FY 2022-2023. See https://www.tn.gov/content/dam/tn/tdot/finance/FY23%20Work%20Program.pdf.
(iv) Murray, Matt and Heaslip, Kevin. (Jan. 30, 2023) Memo Re: Revenue Parity of Electric Vehicles. See https://www.tn.gov/content/dam/tn/tdot/build-with-us/EV-Parity-Memo-revised-1-30-23.pdf and Tennessee Comptroller of the Treasury. (July 2017). The IMPROVE Act. See https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/2017/2017_OREA_IMPROVEAct.pdf and Tennessee Advisory Commission on Intergovernmental Relations. (Dec. 2022). Electric Vehicles and Other Issues Affecting Road and Highway Funding in Tennessee. See https://www.tn.gov/content/dam/tn/tacir/2022publications/ 2022_ElectricVehicles.pdf.
(v) Tennessee Advisory Commission on Intergovernmental Relations. (Dec. 2022). Electric Vehicles and Other Issues Affecting Road and Highway Funding in Tennessee. See https://www.tn.gov/content/dam/tn/tacir/2022publications/2022_ElectricVehicles.pdf.
(vi) Transportation Investment Advocacy Center. (Jan. 2023) Alternative Fuel and Electric Vehicles Taxes and Fees. See https://transportationinvestment.org/research/funding-techniques/alternative-fuel-electric-vehicle-taxes-fees/.
(vii) Ibid. See also US Department of Energy. Alternative Fuels Data Center: State Laws and Incentives. See https://afdc.energy.gov/laws/state Note: States with variable fees depending on weight or other factors were not included in averages.
(viii) Tennessee Advisory Commission on Intergovernmental Relations. (Dec. 2022). Electric Vehicles and Other Issues Affecting Road and Highway Funding in Tennessee. See https://www.tn.gov/content/dam/tn/tacir/2022publications/2022_ElectricVehicles.pdf
(ix) Ibid. See also Tennessee Department of Transportation. (2023). Build with Us Challenges and Solutions Presentation. See https://www.tn.gov/content/dam/tn/tdot/build-with-us/2-21-23%20Tennessee%20Challenges%20and%20Solutions.pdf. Note: TDOT reports that funding to address statewide congestion needs is $26B. Assuming this is for the same 25-year period referenced in the presentation, annual need would be $1.040B, or $540 million per year after accounting for TDOT's reported $500M per year for new construction.
(x) Transportation Investment Advocacy Center. (Jan. 2023) Alternative Fuel and Electric Vehicles Taxes and Fees. See https://transportationinvestment.org/research/funding-techniques/alternative-fuel-electric-vehicle-taxes-fees/.
(xi) Montana State Legislature Staff Report. (Jan. 25, 2022). Road User Charge Fact Sheet: Utah. See https://leg.mt.gov/content/Committees/Interim/2021-2022/Transportation/22_March/Utah_RUC_Fact_Sheet_FINAL.pdf
(xii) Martinez, Arlene. (October 21, 2022). Good Jobs First. Will EVs Create Budget Potholes for States? Economic Development Megadeals for Electric Vehicle and Battery Factories. See https://goodjobsfirst.org/will-evs-create-budget-potholes-for-states-economic-development-megadeals-for-electric-vehicle-and-battery-factories-2/.
(xiii) ThinkTennessee. (2023). State of Our State Dashboard. See https://www.thinktennessee.org/state-of-our-state/.
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