MHDV Alternative Fuel Fleet Resources Webinar
May 2025

Welcome

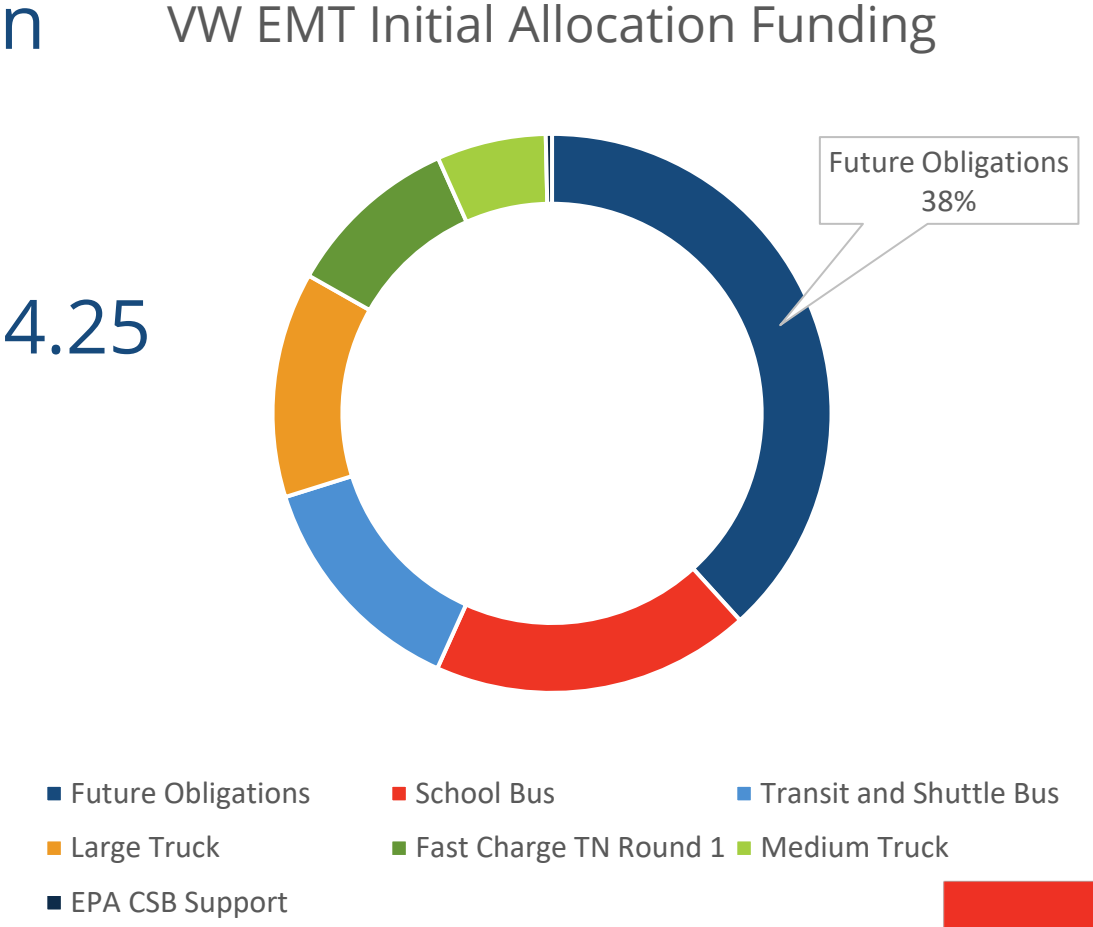
- This webinar will be recorded, and the recording as well as these slides will be made available to attendees.
- Attendees will be muted throughout the presentation.
- Regular chat is disabled.
- Please utilize the Q&A function to submit questions or comments; these will be addressed by TDEC staff in the Q&A box throughout the presentation, and anything remaining will be addressed following the presentation.

Volkswagen Settlement EMT (VW EMT)

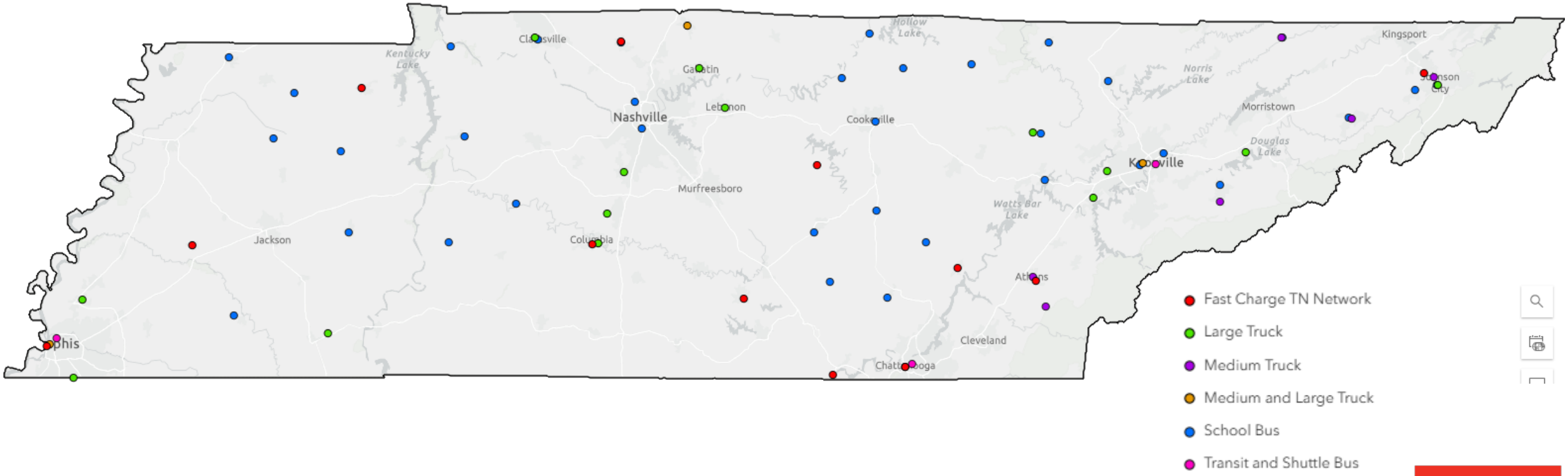
- TDEC maintains a Beneficiary Mitigation Plan for implementing the State's initial allocation of $45,759,914.40 from the Volkswagen Diesel Settlement Environmental Mitigation Trust.
- The purpose of the EMT is to execute environmental mitigation projects that reduce emissions of nitrogen oxides (NOx).
- Approximately 62% of this allocation has been obligated to date to School Bus, Transit and Shuttle Bus, Medium (Class 4-7) Truck, Large (Class 8) Truck, and DC Fast Charging Infrastructure projects.

VW EMT – Funding Obligations

- 62% of *initial* project funds have been obligated or paid to date
  - School Bus: $7,710,801.94
  - Transit and Shuttle Bus: $5,610,684.25
  - Medium Truck: $2,639,375.30
  - Large Truck: $5,443,664.36
  - Fast Charge TN: $4,224,583.92
  - Support of EPA Clean School Bus Recipients: $150,000.00



VW Settlement EMT – Recipients to Date



VW EMT Medium- and Heavy-Duty Vehicle Grant

- Applications and supporting documentation must be submitted electronically via the TDEC Online Grants Management System, which may be accessed here: https://tdec.smartsimple.com/.
- Applications must be received by **4:00 pm CDT on Friday, June 13**.
- TDEC will announce awards after conducting a comprehensive review and evaluation of all complete and eligible grant applications. Grant contracting efforts will occur shortly thereafter.
- Full program details at: tinyurl.com/TN-MHDV

Eligibility

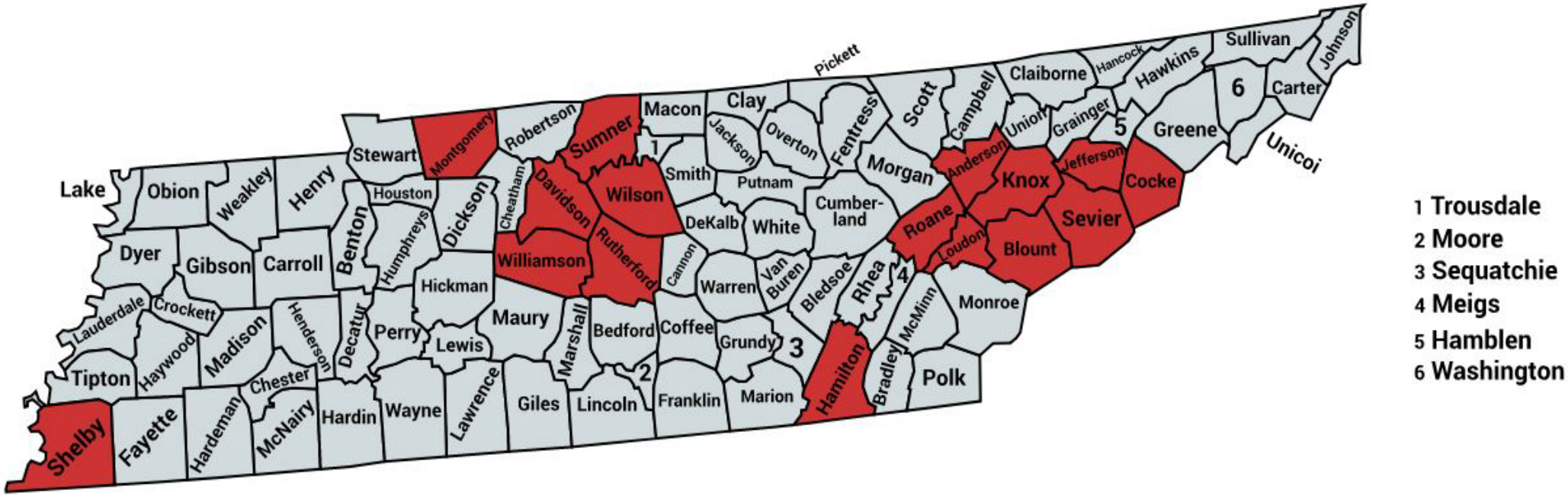
- Eligible applicants: both government and non-government entities in Tennessee.
- Applicants must intend to maintain operations in Tennessee for a minimum of five years.
- Diesel-fueled, 1992–2009 engine model year or older vehicles to be replaced and SCRAPPED include:
  - Class 4-8 trucks, including emergency response vehicles
  - Class 4-8 transit and shuttle buses
  - Class 4-8 school buses
- Eligible vehicles may be repowered with any new all-electric or alternate fueled engine, or may be replaced with any all-electric or alternate fueled vehicle.
  - Eligible fuel types include all-electric, hydrogen fuel cell, hybrid, propane, and compressed natural gas.
- Bi-fuel engines and vehicles will be considered on a case-by-case basis for emergency response vehicles only.
  - Bi-fuel vehicles must utilize an alternative fuel at least 70% of the time.

Funding Caps

For selected projects, there are several tiers of funding caps:

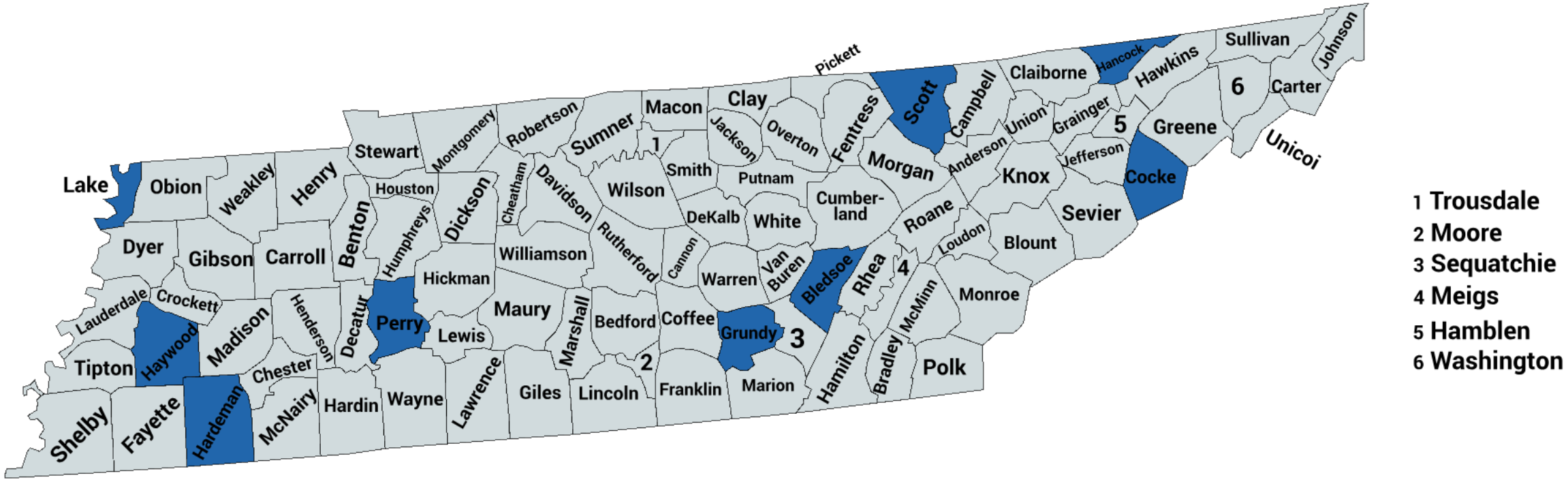
- All-electric:
  - 50% of vehicle and EV infrastructure purchase costs for non-government projects
  - 75% of vehicle and EV infrastructure purchase costs for government projects
  - 90% of vehicle and EV infrastructure purchase costs for government projects located in a distressed county or former nonattainment area for criteria pollutants (maps on next slides)
- Alternative fuel (diesel hybrid, plug-in hybrid, propane, compressed natural gas) :
  - 25% of vehicle and EV infrastructure purchase costs for non-government projects
  - 50% of vehicle and EV infrastructure purchase costs for government projects
  - 75% of vehicle and EV infrastructure purchase costs for government projects located in a distressed county or former nonattainment area for criteria pollutants (maps on next slides)

Current or Former Nonattainment Areas for Ozone and/or $PM_{2.5}$ NAAQS



Note: Only portions of Roane and Cocke counties are designated as former nonattainment areas for the Ozone and/or $PM_{2.5}$ NAAQS. Within Roane County, this includes the area described by U.S. Census 2000 block group identifier 47-145-0307-2, and within Cocke County, this includes the area covering the Great Smoky Mountains National Park.

Distressed Counties in Tennessee (Fiscal Year 2025)



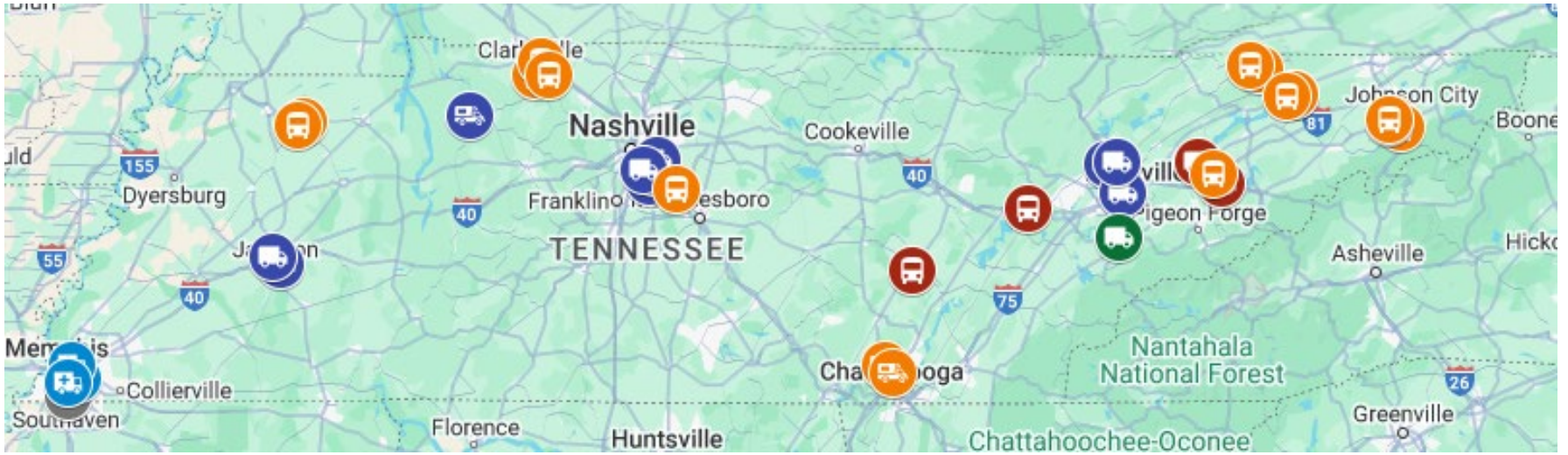
1 Trousdale
2 Moore
3 Sequatchie
4 Meigs
5 Hamblen
6 Washington

- Distressed Counties are defined as those counties that rank amongst the 10% most economically distressed counties in the nation based on a three-year average unemployment rate, per capita market income, and poverty rate.
- Distressed County designations are updated each State Fiscal Year. For purposes of this Program, a county must be designated as Distressed in Fiscal Year 2025 to be treated as a Distressed County during the application evaluation process. As of Fiscal Year 2025, Tennessee has 9 Distressed Counties.

RDE4HT

- TDEC administers TN's annual allocation of EPA Diesel Emissions Reduction Act (DERA) funds.
- This funding is released to applicants through the Reducing Diesel Emissions for a Healthier Tennessee (RDE4HT) grant program, managed by the East Tennessee Clean Fuels Coalition.
- Provides funding for alternative fuel vehicle replacement projects, with an emphasis on all-electric projects.
- **Application cycle anticipated each fall; 2025 program TBD.**
- Contact Mark.Finlay@tn.gov and darcy@utk.edu if interested in learning more.
- tinyurl.com/TN-DERA

RDE4HT
Reducing Diesel Emissions for a **Healthier Tennessee**



TDEC Vehicle Funding Recap

Since 2019, through these two funding programs, OEP has provided grant funding to **75** grantees for the replacement of **235** older, diesel medium- and heavy-duty vehicles with the purchase of new vehicles, including **125** vehicles powered by alternative fuel.

The approx. $19.4 million available under the open MHDV Grant Program represents the largest single release of funds to date, about 45% of total vehicle replacement project funds under both programs since 2019.

Federal Tax Credits & IRA Elective Pay

- Commercial Clean Vehicle Credit
  - Businesses and tax-exempt organizations that buy a qualified commercial clean vehicle may qualify for a clean vehicle tax credit of up to $40,000 under Internal Revenue Code (IRC) 45W.
  - IRS Webpage
- Alternative Fuel Vehicle Refueling Property Credit
  - Businesses that install new EV chargers or EV charger equipment can benefit from a tax incentive of up to 30% of the total cost of equipment and installation, under the conditions of meeting certain labor and construction requirements to be eligible to claim the full incentive.
  - For projects completed after 2022, the tax credit per property item is up to $100,000 per EV charger.
  - IRS Webpage

Electrification Coalition Resource on IRA Elective Pay

- Includes:
  - Elective Pay Blueprint
  - Elective Pay Decision Flowchart
  - Annotated Tax Forms
  - Frequently Asked Questions

Electrification Coalition

Access this resource here.

Tennessee Clean Fuels

- **Purpose:** Middle-West TN Clean Fuels and East TN Clean Fuels are nonprofits and designated coalitions in the U.S. Department of Energy's national Clean Cities and Communities Program. Collectively known as Tennessee Clean Fuels, they seek to promote education, awareness, and adoption of alternative fuels and advanced vehicle technologies.

- **Examples of Current Activities:**
  - *Direct fleet technical assistance (!!)*
  - Education and outreach
  - Data collection and synthesis
  - Workshops & webinars (e.g., Electric Vehicle Battery Reuse and Recycling, Freight Electrification, School Bus Electrification)
  - Hydrogen Fueling Listening Session
  - Alternative Fuel Vehicle Safety Trainings for First Responders
  - Support to Drive Electric Tennessee (Regional Chapter Meetings, Committees, forthcoming Roadmap Refresh)
  - In-person public-facing events (ride-and-drives & vehicle showcases, Drive Electric Earth Month events, National Drive Electric Month events)
  - Support of federally-funded alternative fuel vehicle and efficient mobility projects

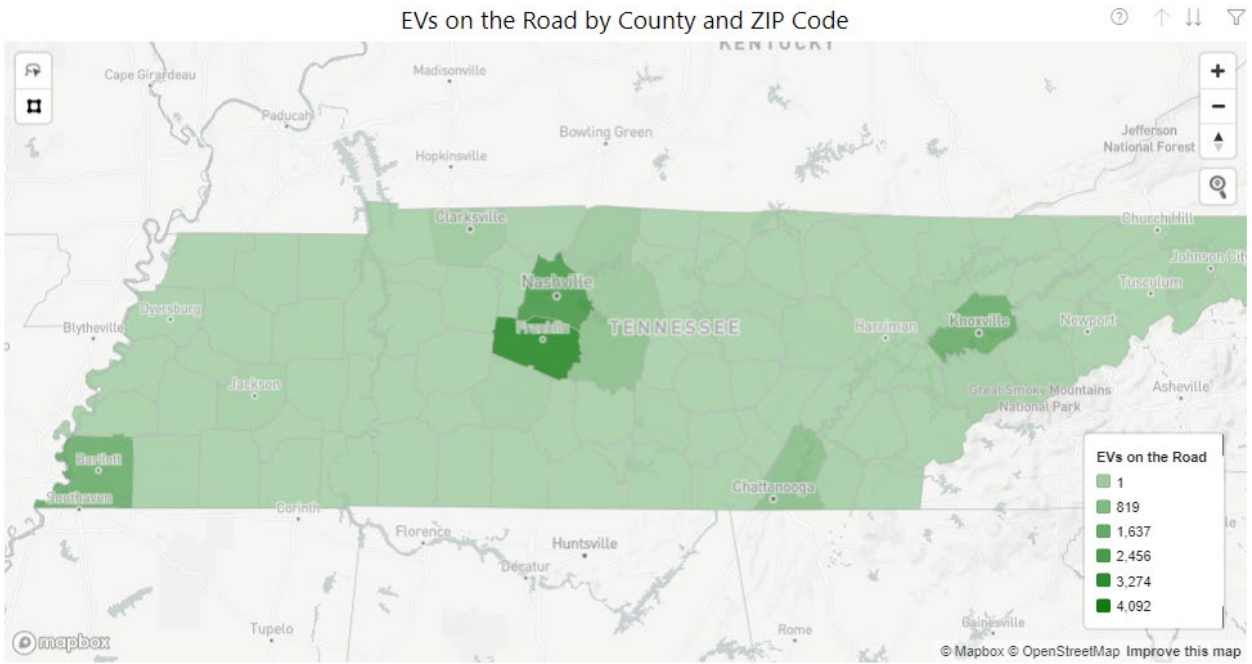
https://www.tncleanfuels.org/

Drive Electric TN

The Drive Electric Tennessee consortium (DET) set a goal in 2018 to increase EV adoption in Tennessee to 200,000 vehicles by 2028: DriveElectricTN.org

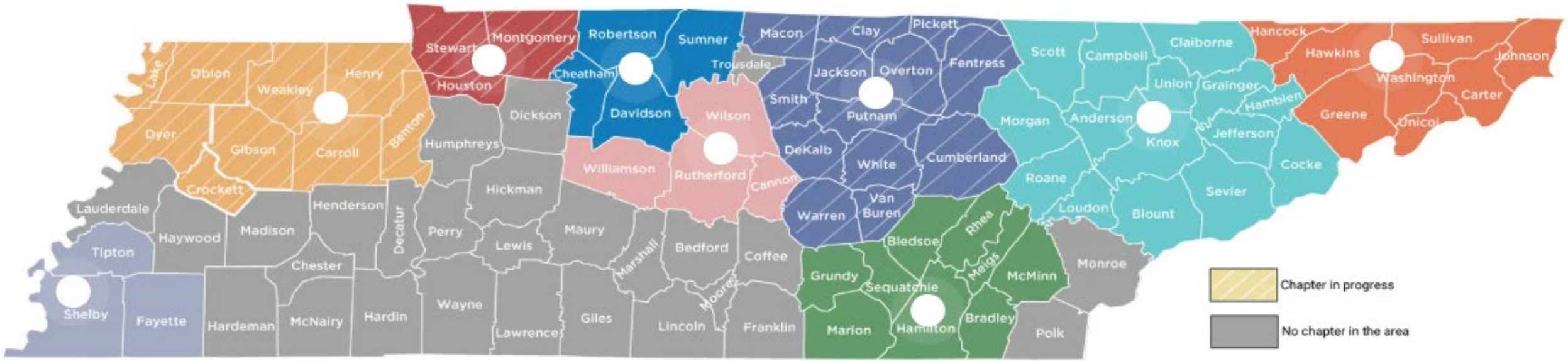
EV adoption growth in TN:

- Q1 2019: 7,081
- Q1 2020: 7,974
- Q1 2021: 12,009
- Q1 2022: 18,524
- Q1 2023: 28,203
- Q1 2024: 39,360
- Q4 2024: 51,852
- Q1 2025: TBD



See more EV stats & registration information on Atlas Public Policy's EV Hub: atlasevhub.com

DRIVE ELECTRIC TENNESSEE CHAPTERS



TN

PROGRAM GOALS

Economic Development

Promote local and regional economic development;
Be attentive to local customer preferences and needs;
Be mindful of supply chain and other resource constraints

Social Benefits

Include social equity considerations to benefit all Tennesseans;
Reduce environmental impacts

Cost-Effectiveness

Prioritize cost effective investments;
Maintain a safe, reliable, affordable, and continuously optimized electric grid

Technology Innovation

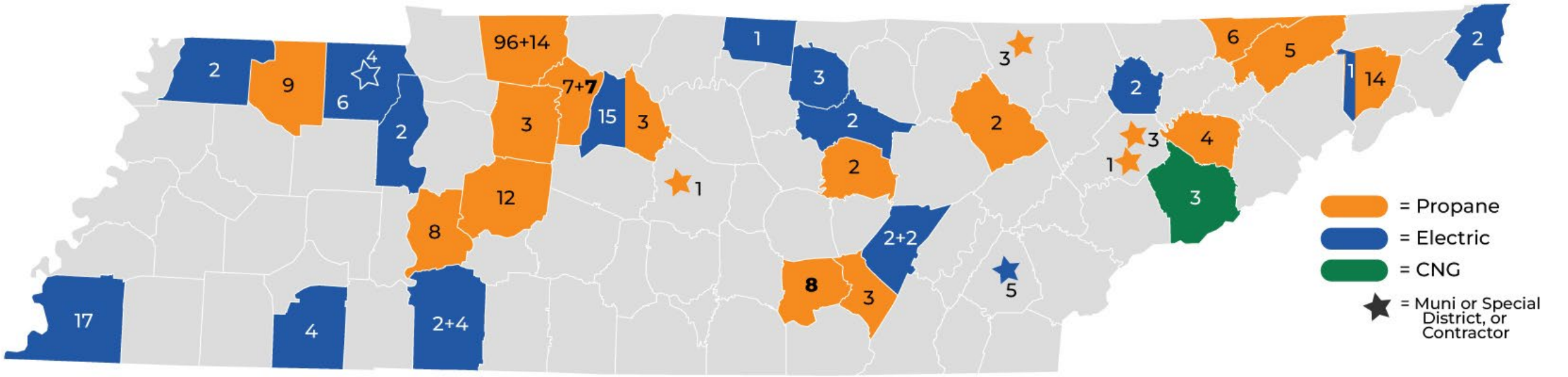
Foster entrepreneurship and technical innovation in the transportation sector;
Prepare for a more connected, autonomous transportation sector

TN

TN BEEP

The TN BEEP (Bus Electrification, Education and Planning) partnership is providing no-cost education and assistance services to school district leadership and fleet management personnel in Tennessee to help any districts that want to “make the switch” to electric or other alternative-fuel school buses. Find us here: driveelectrictn.org/beep

Alternative Fuel School Buses in or coming to TN School Districts - March 2025



MIDDLE WEST TN CLEAN FUELS TNCLEANFUELS.ORG × EAST TENNESSEE CLEAN FUELS TNCleanFuels.org

TVA TENNESSEE VALLEY AUTHORITY

Drive Electric TENNESSEE

TN Department of Environment & Conservation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Central States Bus Sales, Inc. "The Bus Experts" www.centralstatesbus.com

Cumberland

MID-SOUTH BUS CENTER www.thebuscenter.com

MEDIUM DUTY eTRUCK

TTU MD e-Truck Demonstration Project

Seeking volunteers for Test Drive!

eTruck Info

Xos SV05 Battery-Electric Step Van

- **Range**: 100-150 miles
- **Cargo Volume**: 900-1000 cubic ft.
- **Charge Time**: ~2 hours [DCFC] or ~6 hours [L2]

Volunteer Criteria

- Be a fleet running in Tennessee
- Have access to a Level 2 charger OR
- Pay for the installation of a Level 2 charger
- Proof of suitable insurance to cover the truck

Borrow the truck for one month at *NO COST* to your organization!

Visit https://mdetruck.com/ or scan below to get started!

Project Partners

The University of Texas at Austin

Tennessee TECH

TENNESSEE CLEAN FUELS

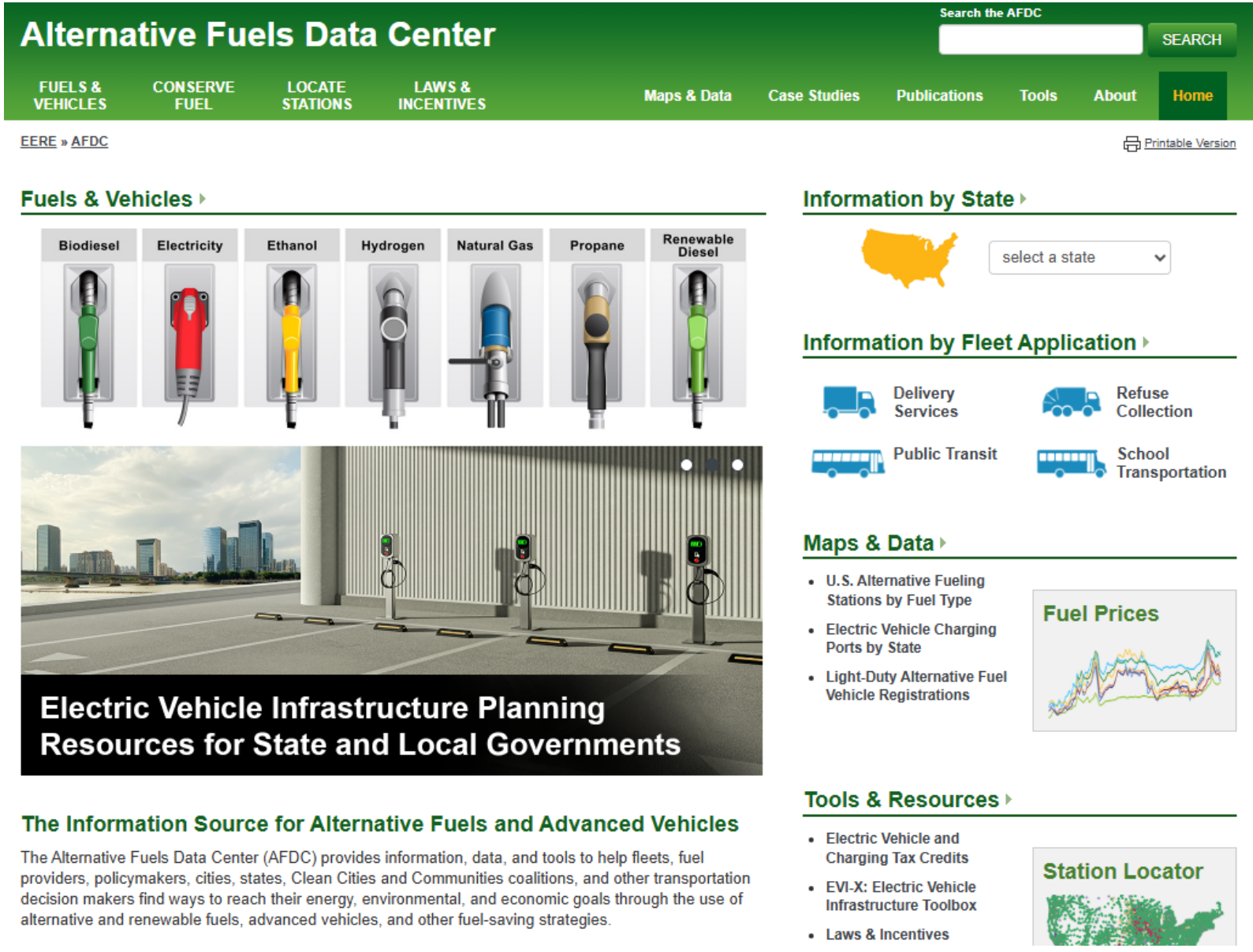
SEVEN STATES POWER CORPORATION

Professor Pingen Chen • pchen@tntech.edu • (931) 372-3310

Alternative Fuel Data Center Resources

https://afdc.energy.gov/

- Includes information on the alternative fuel market including resources by fleet application, laws & incentives, tax credit information, planning resources, vehicle availability, and more.



Alternative Fuel Data Center Resources

Propane

Propane, also known as liquefied petroleum gas (LPG) or propane autogas, has been used worldwide as a vehicle fuel for decades. It is stored as a liquid, and propane fueling infrastructure is widespread.

Basics

Find information about propane, including production and distribution, and research and development.

Benefits and Considerations

Explore the benefits and considerations of using propane as a vehicle fuel.

Stations

Locate propane fueling stations across the country and learn about propane fueling infrastructure.

Vehicles

Learn about propane vehicles and how they work, and find information about vehicle availability, conversions, emissions, maintenance, and safety.

Laws and Incentives

Find laws and incentives related to propane in your area.

Fuel Prices

Find propane fuel prices and trends.

Alternative Fuel Data Center Resources

Fleet Application Data and Information


Delivery Services


Refuse Collection


Public Transit


School Transportation

Fleet Application for Delivery Services Vehicles

Find transportation data and information about the delivery services vehicle application. Fleets in niche markets operate vehicles designed to serve specific functions, which makes these vehicles ideal for the adoption of alternative fuels and advanced vehicle technologies.

Vehicle Availability

SEARCH ALL VEHICLES

28 vehicles

- 2 CNG - Compressed Natural Gas
- 17 Electric
- 3 Ethanol (E85)
- 5 Hybrid Electric
- 1 Hydrogen Fuel Cell
- 3 Plug-in Hybrid Electric
- 2 Propane

Alternative Fuel Data Center Resources

Alternative Fuel and Advanced Vehicle Search

Find and compare alternative fuel vehicles, engines, and hybrid/conversion systems. Some of the light-duty vehicles may count toward vehicle-acquisition requirements for federal fleets or state and alternative fuel provider fleets regulated by the Energy Policy Act. For downloads of past model years, see the publications search.

Light-Duty Vehicles

All Vehicles

Vehicles by Type


Sedan/Wagon


Pickup


SUV


Van


Step Van


Vocational/Cab Chassis


Street Sweeper


Refuse


Tractor


Passenger Van/Shuttle Bus


Transit Bus


School Bus

Vehicles by Manufacturer

Light-Duty

All SEARCH

Medium- and Heavy-Duty

All SEARCH

Engines and Hybrid/Conversion Systems

For medium- and heavy-duty vehicles:

ENGINE & POWER SOURCES

CONVERSION & HYBRID SYSTEMS

Alternative Fuel Data Center Resources

Tax Credits for Electric Vehicles and Charging Infrastructure

Until 2032, federal tax credits are available to consumers, fleets, businesses, and tax-exempt entities investing in new, used, and commercial clean vehicles—including all-electric vehicles (EVs), plug-in hybrid EVs, fuel cell EVs—and EV charging infrastructure through the Inflation Reduction Act of 2022 and implemented by the Internal Revenue Service (IRS).* Manufacturers of these vehicles, and the dealerships that sell them, must work with the IRS to ensure buyers of EVs can take advantage of these tax credits. Your state, utility, or local government may provide additional incentives.

Clean Vehicles

Explore how consumers and fleets (including businesses and tax-exempt entities) can take advantage of clean vehicle tax credits and how manufacturers of these vehicles and the dealerships that sell them must work with the IRS to ensure buyers of EVs can claim these vehicle tax credits.

Consumers

Learn about tax credits for acquiring (new or used) EVs.

Fleets

Explore credits for commercial and tax-exempt entities.

Dealerships

Learn how to register with the IRS and take advantage of tax credits at time-of-sale.

EV Manufacturers

Find out how to qualify your company's vehicles for the clean vehicle credit.

Alternative Fuel Data Center Resources

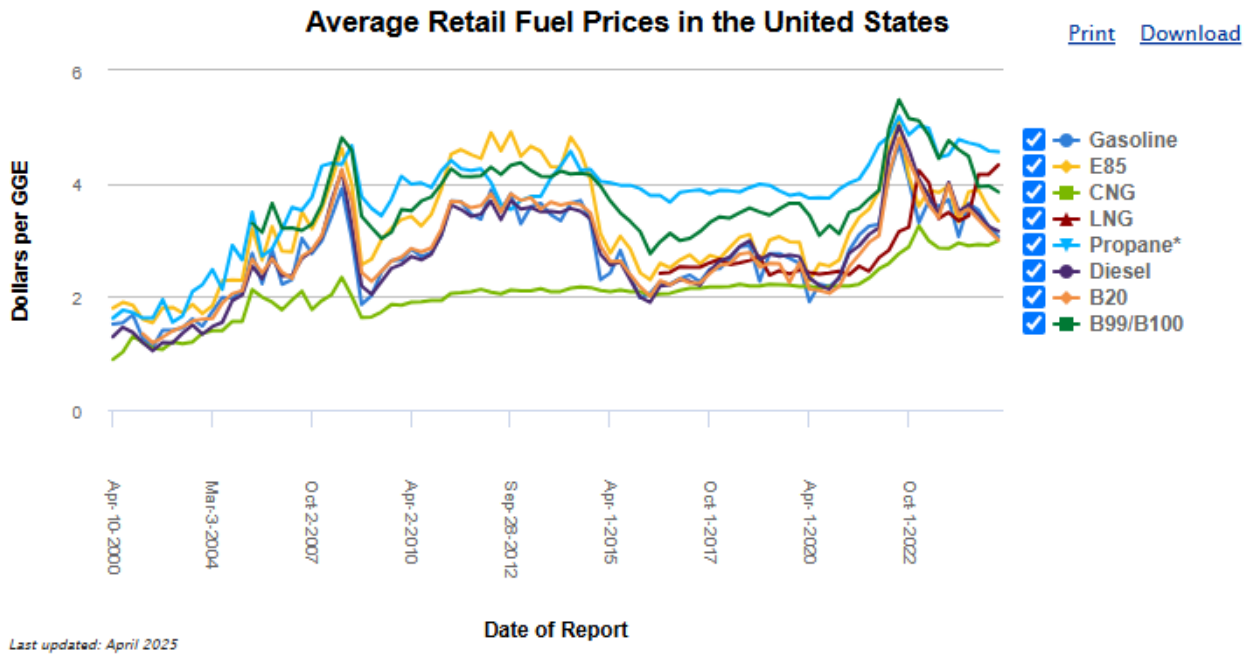
Fuel Prices

As gasoline prices increase, alternative fuels appeal more to vehicle fleet managers and consumers. Like gasoline, alternative fuel prices can fluctuate based on location, time of year, and political climate.

Alternative Fuel Price Report

The Clean Cities and Communities Alternative Fuel Price Report provides regional alternative and conventional fuel prices for biodiesel, compressed natural gas, ethanol, hydrogen, propane, gasoline, and diesel. The Alternative Fuel Price Report is a snapshot in time of retail fuel prices. Alternative fuel fleets can obtain significantly lower fuel prices than those reported by entering into contracts directly with local fuel suppliers. See all price reports.

- January 2025
- October 2024

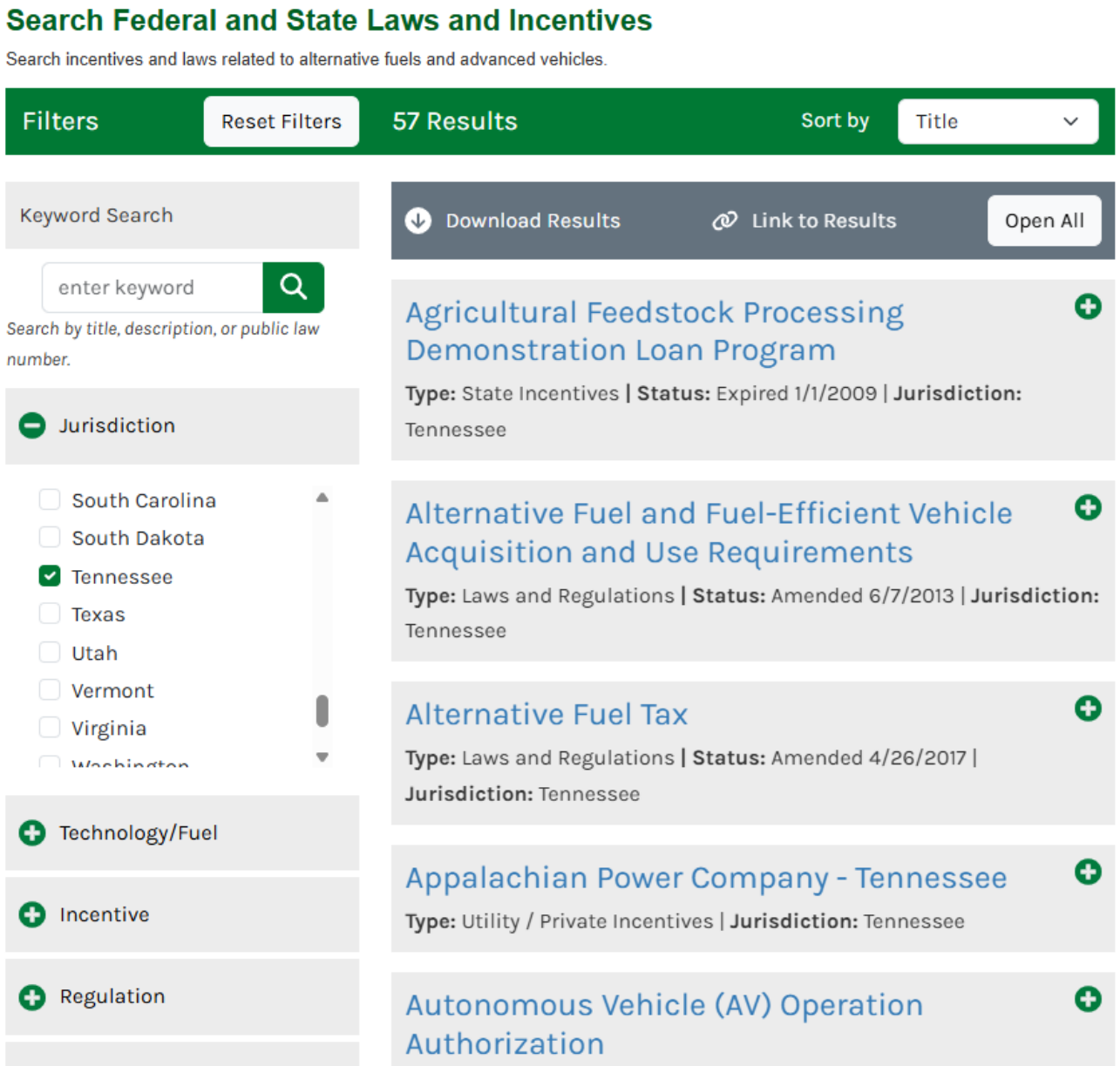


Last updated: April 2025
Printed on: May 6

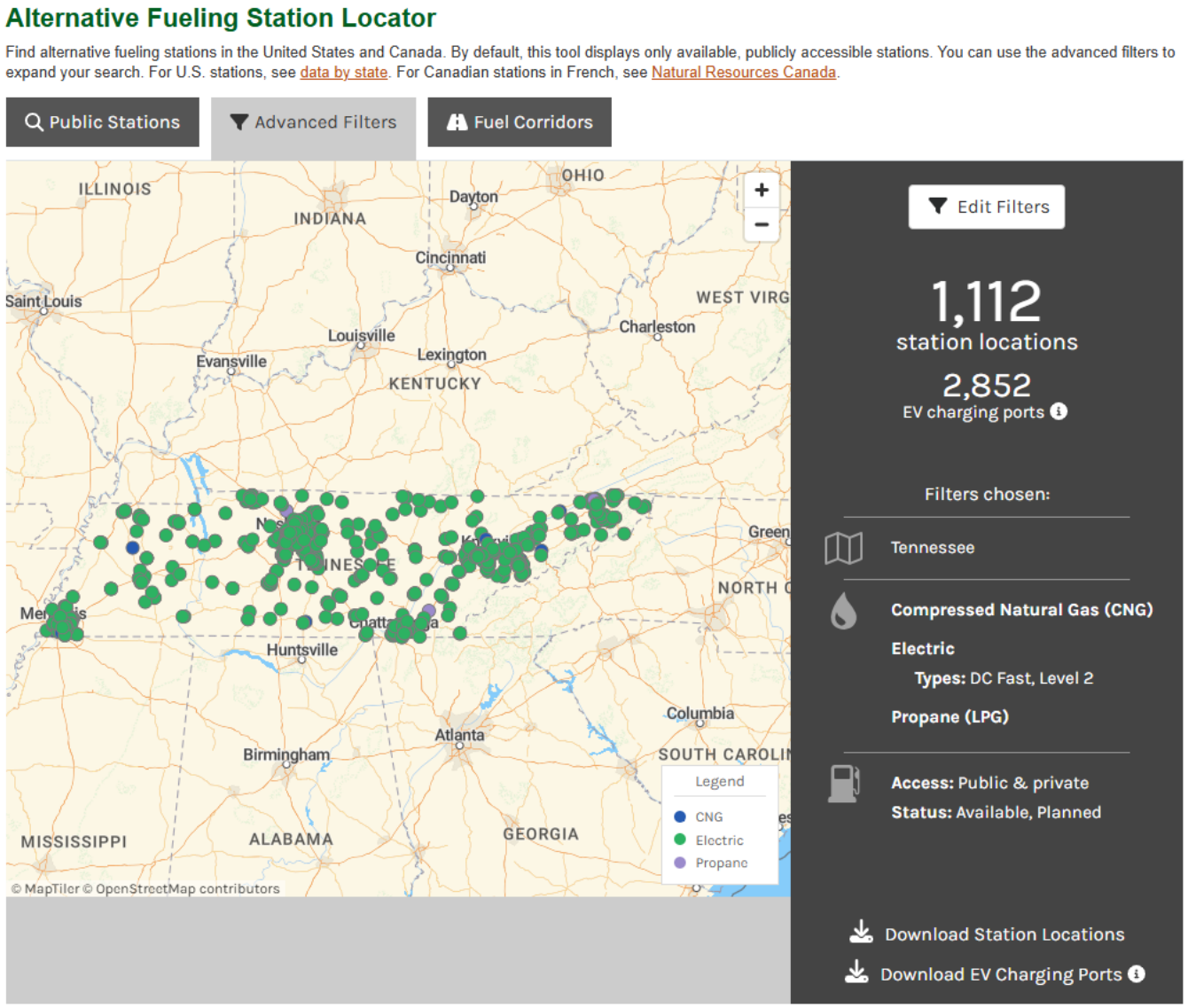
National Average Price Between January 1 and January 15, 2025	
Fuel	**Price**
Biodiesel (B20)	$3.34/gallon
Biodiesel (B99-B100)	$3.93/gallon
Ethanol (E85)	$2.57/gallon
Natural Gas (CNG)	$2.99/GGE
Liquefied Natural Gas	$4.86/DGE
Propane	$3.33/gallon
Gasoline	$3.06/gallon
Diesel	$3.55/gallon

Source: Alternative Fuel Price Report, January 2025

Alternative Fuel Data Center Resources



Alternative Fuel Data Center Resources



Alternative Fuel Life-Cycle Environmental and Economic Assessment Tool (AFLEET)

Welcome To AFLEET

The Department of Energy's Technology Integration Program has enlisted the expertise of Argonne to develop a tool to examine both the environmental and economic costs and benefits of alternative fuel and advanced vehicles (AFVs). Argonne developed the Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) Tool to help stakeholders estimate petroleum use, greenhouse gas (GHG) emissions, air pollutant emissions, and cost of ownership of light-duty, heavy-duty, and off-road vehicles. AFLEET can be accessed via spreadsheet and online versions. In addition, the ATRAVEL Tool has been built using AFLEET data to examine the costs and benefits of different modes for personal travel.

AFLEET Tool (xlsx)

The AFLEET spreadsheet provides detailed energy, emission, and cost data for light-duty, heavy-duty, and off-road AFVs. It has 10 calculators depending on the user's goals including:

- Simple payback
- Total cost of ownership
- Fleet footprint
- Idle reduction
- Electric vehicle charging and AFV fueling infrastructure

AFLEET Online

AFLEET Online replicates five of the spreadsheet's calculators: Payback On-Road, Payback Off-Road, TCO, EV Rate, and Charger TCO with a user-friendly interface and analyzes the following metrics:

- Petroleum use
- Greenhouse gas emissions
- Air pollutant emissions
- Simple payback
- Total cost of ownership
- Cost of EV charging

HDVEC

The Heavy Duty Vehicle Emissions Calculator (HDVEC) is an AFLEET-based online tool that compares NOx, PM, GHGs and funding cost-effectiveness of environmental mitigation projects for the following fuel types:

- Diesel
- Electric
- Natural gas
- Propane

ATRAVEL

The ATRAVEL Tool was developed to estimate costs, travel time, and emissions of private vehicle ownership and other travel modes based on your location and travel patterns, while also providing related travel metrics at both local and regional levels. The travel modes currently included are:

- Private vehicle
- Transit
- Ridehail

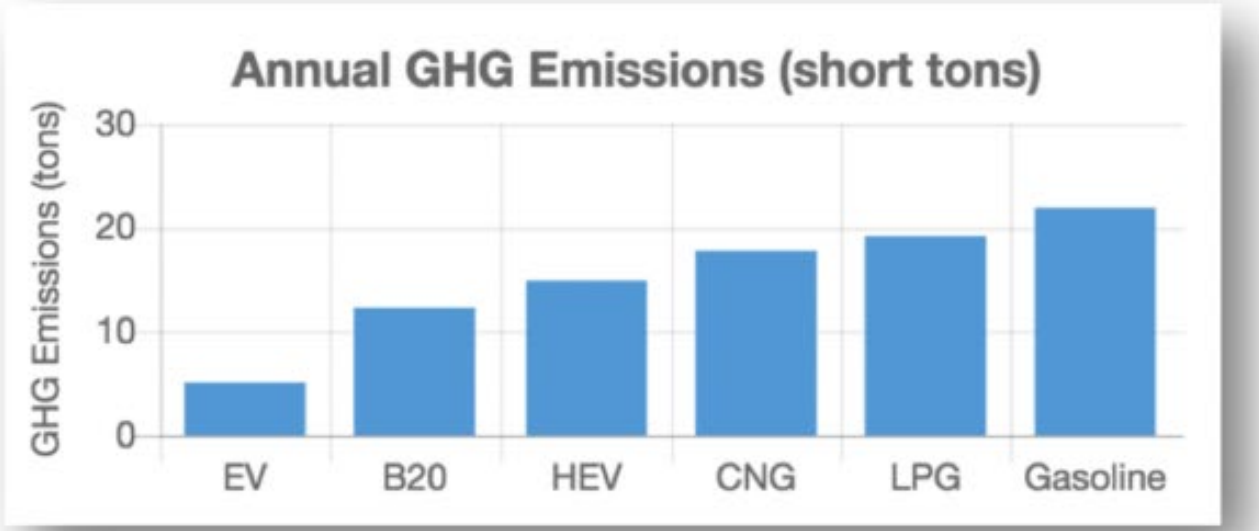
AFLEET CFI

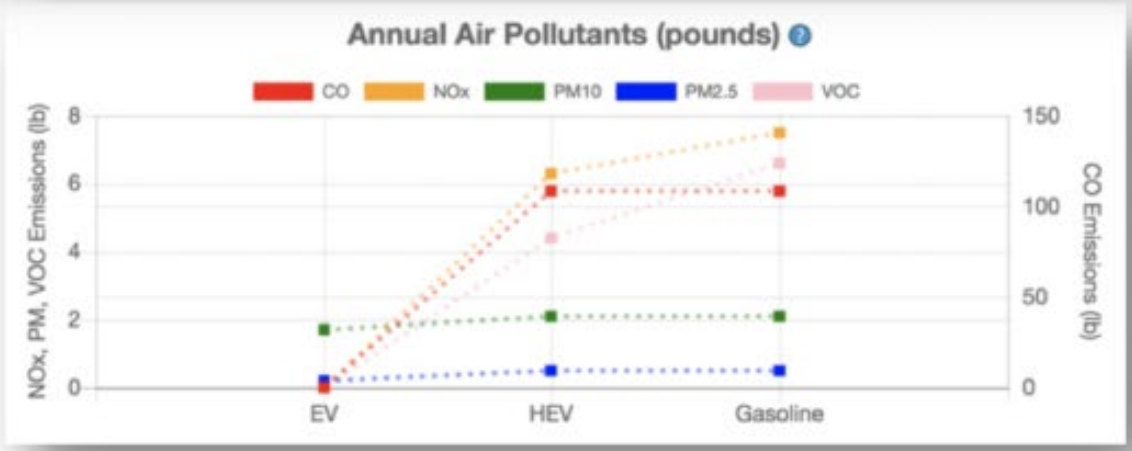
The AFLEET Charging and Fueling Infrastructure (CFI) Emissions Tool estimates GHG and air pollutant emissions for proposals to the FHWA's CFI Discretionary Grant Program for the following fuel types:

- Electric
- Hydrogen
- Natural gas
- Propane

afleet.esia.anl.gov

Alternative Fuel Life-Cycle Environmental and Economic Assessment Tool (AFLEET)





VICE Models

afdc.energy.gov/vice_model

Vehicle and Infrastructure Cash-Flow Evaluation Model

The Vehicle and Infrastructure Cash-Flow Evaluation (VICE) models are financial tools developed by the National Renewable Energy Laboratory to help fleet managers assess the financial soundness of converting vehicles to compressed natural gas (CNG) or battery electric buses (BEB). The VICE CNG model applies to fleets with a variety of vehicle applications, and the VICE BEB model applies to fleets of transit buses. Both models have numerous default inputs, but accuracy increases as fleet managers adjust the inputs based on their specific fleet data. Outputs include net present value and the payback period for investing in alternative fuel vehicles and infrastructure.

Battery Electric Buses

Download the VICE BEB Model.

Learn more in the Financial Analysis of Battery Electric Transit Buses.

Compressed Natural Gas Vehicles

Download the VICE CNG Model.

Learn more about Building a Business Case for Compressed Natural Gas in Fleet Applications.

HEVISAM (Heavy-duty Electric Vehicle Infrastructure Scenario Analysis Model)

HEVISAM estimates the levelized charging cost ($/kWh) for a direct current fast charging (DCFC) station designed for particular medium- and/or heavy-duty electric fleet vehicles, considering hourly demand and charging rate scenarios.

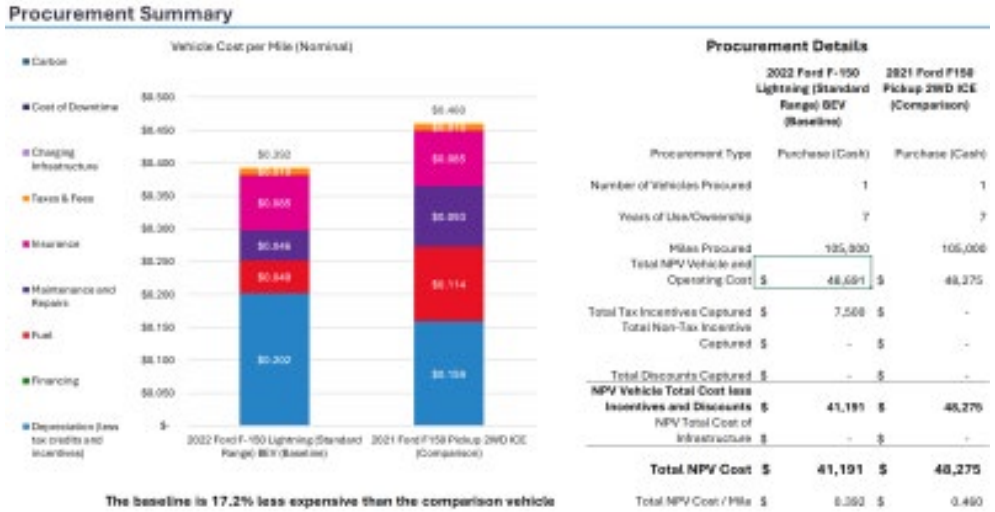
It enables calculation of:

- Capital costs
- O&M costs
- Charging stations' energy costs
- Charging stations' cash flows
- Levelized charging cost ($/kWh)

hdsam.es.anl.gov

Atlas Public Policy Fleet Procurement Analysis Tool

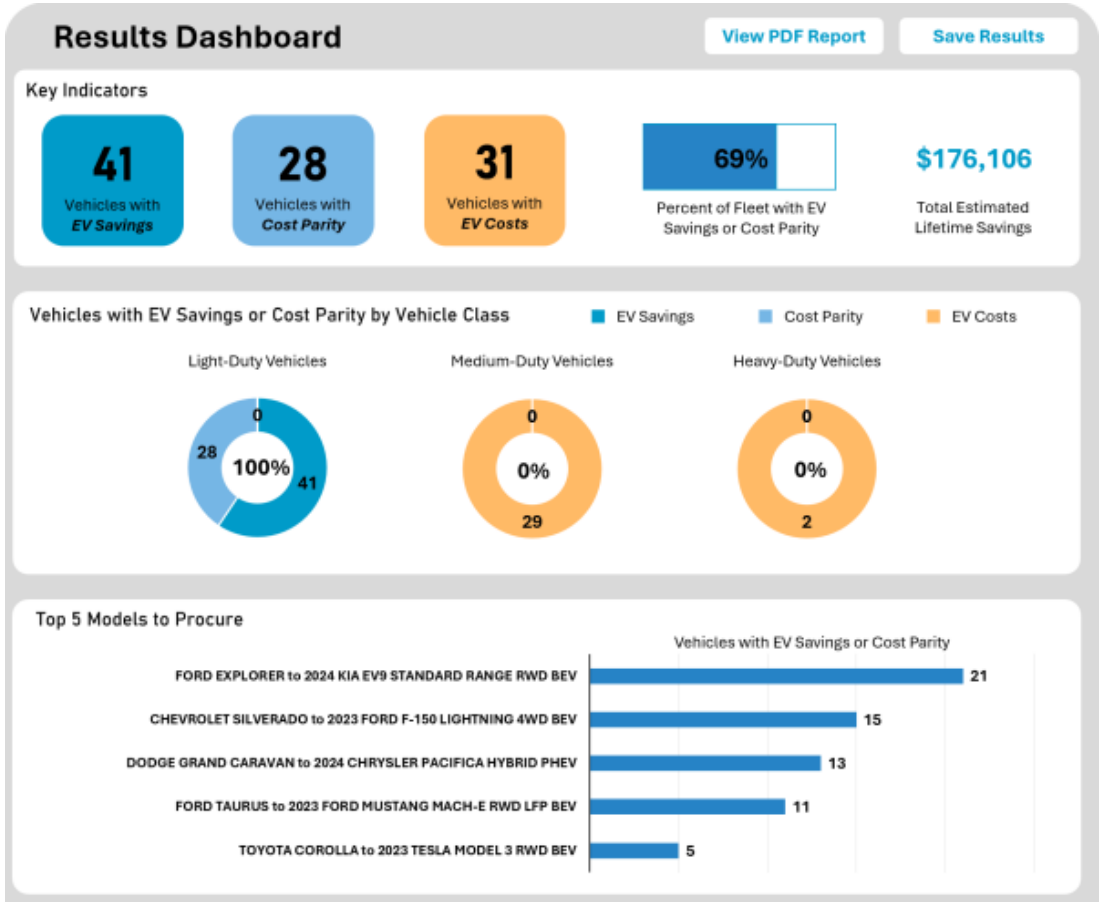
- Equips users with decision-relevant information on the financial viability and environmental impact of light-, medium-, and heavy-duty vehicle fleet procurements.
- Evaluates a variety of procurement ownership structures, vehicle types, and procurement scenarios.
- Compares procurements side-by-side on a cost-per-mile basis and provides an analysis of cash flows and location-specific lifecycle emissions.
- Highly flexible, supports customizable sensitivity variables, and produces user-friendly results summaries.
- Regularly updated.



atlaspolicy.com/fleet-procurement-analysis-tool

Dashboard for Rapid Vehicle Electrification (DRVE)

- Equips users with decision-relevant information on the financial viability and environmental impact of light-, medium-, and heavy-duty vehicle fleet procurements across an entire fleet.
- Allows users to import all fleet vehicles and compare a fleet's conventional vehicles with an electric vehicle alternative.
- Regularly updated.



atlaspolicy.com/dashboard-for-rapid-vehicle-electrification-drve/

Success Stories in TN – Electric

Derby Distribution, Inc. – Maryville

Shelby County

Washington County Schools

American Snuff Co. (Clarksville)

Knoxville Area Transit

Upper Cumberland Human Resources Agency

Success Stories in TN – Propane / CNG

Clarksville-Montgomery County Schools (Propane)

Metro Nashville Airport Authority (ABM Aviation – CNG)

Clean Sweep, Inc. - Chattanooga (Propane)

Waste Management of Tennessee - Antioch, Jackson, Memphis, Nashville (CNG)

Sevier County Schools (CNG)

Coming Soon! – City of Chattanooga (CNG, eventually RNG)

Drive Electric TN Momentum Summit

- The third annual Momentum Summit will take place June 24 at Middle TN State University in Murfreesboro.
- This event will include an EV Ride and Drive, and sessions will focus on transportation electrification efforts, including economic and environmental benefits, infrastructure progress, and university and college research on transportation electrification topics.
- Visit driveelectrictn.org for more information.

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