North Central Texas Council of Governments

Regional Transportation Council

SMARTE
Saving Money and Reducing Truck Emissions

Saving Money and Reducing Truck Emissions Webinar Series

Checklist to Charge: Electrification Planning

Date: Wednesday, October 15, 2025

Time: 11:00 – 12:00 PM Central Standard Time

Hosted by the **North Central Texas Council of Governments (NCTCOG)**

Register in Microsoft Forms at:

https://forms.microsoft.com/r/JRxDRpCrWN

Webinar will be presented through **ZOOM**

Contact: Trey Pope, tpope@nctcog.org

Presenters:

Juliana VandenBorn, NCTCOG

Mike Roeth, NACFE

OVERVIEW


Image provided by Getty

Welcome, Introduction
Presenter: Trey Pope, Transportation/Air Quality Planner, NCTCOG

Steps to Electrification
Presenter: Juliana VandenBorn, Senior Air Quality Planner, NCTCOG

Electrification Is Ready for the Long Haul
Presenter: Mike Roeth, Executive Director, NACFE

Discussion

Updates and Close

Saving Money and Reducing Trucking Emissions Program

GOALS

Promote emissions reduction and cost saving strategies within the trucking industry

INITIATIVES

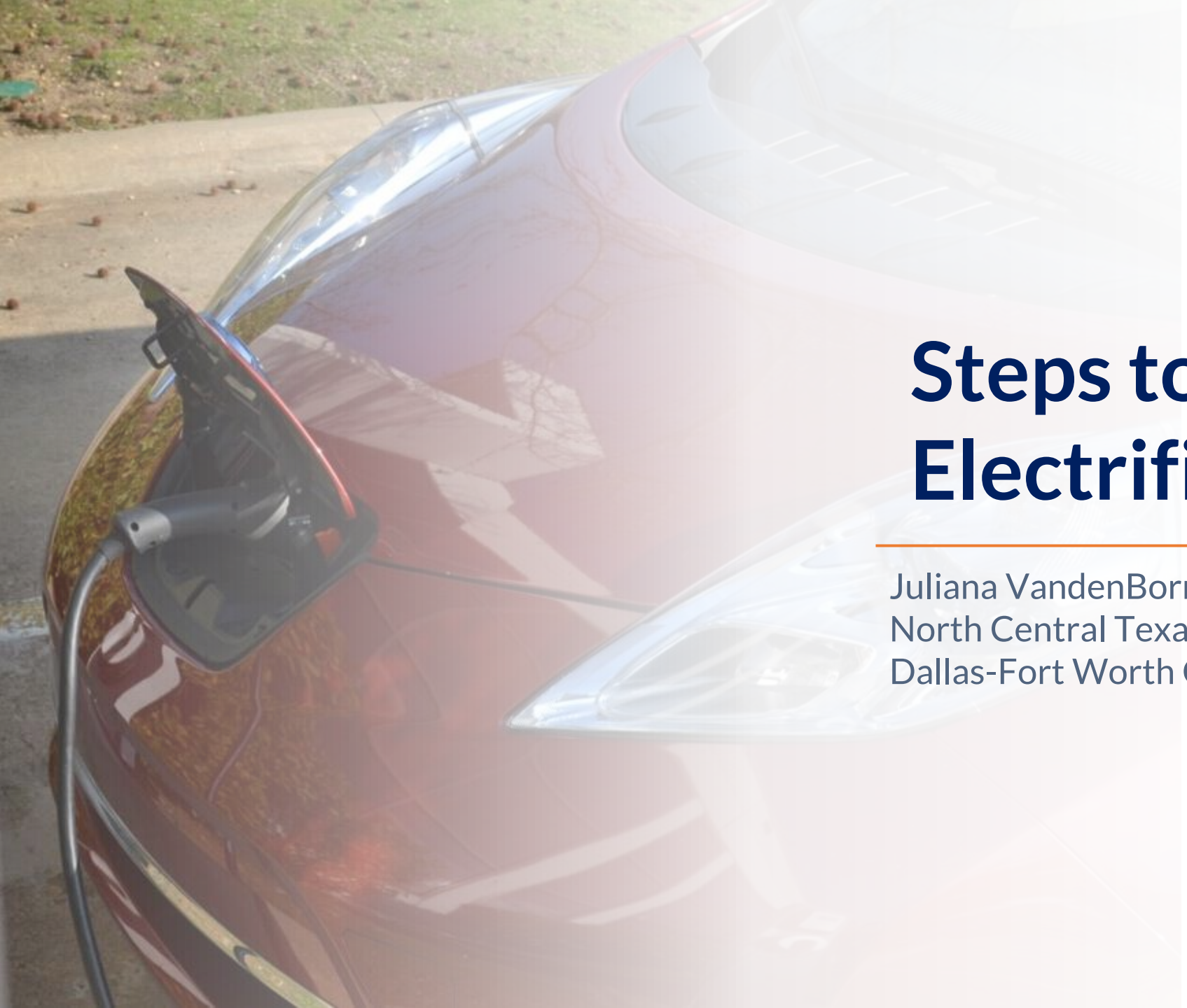
Build relationships within the trucking industry

Share information about emission reduction strategies

Connect SmartWay verified technology to trucking owner/operators and fleet managers

SMARTE

Saving Money and Reducing Truck Emissions



Steps to Electrification

Juliana VandenBorn, Senior Air Quality Planner
North Central Texas Council of Governments /
Dallas-Fort Worth Clean Cities

Who We Are

Regional Planning Agency

North Central Texas Council of Governments

Metropolitan Planning Organization (MPO)

Regional Transportation Council

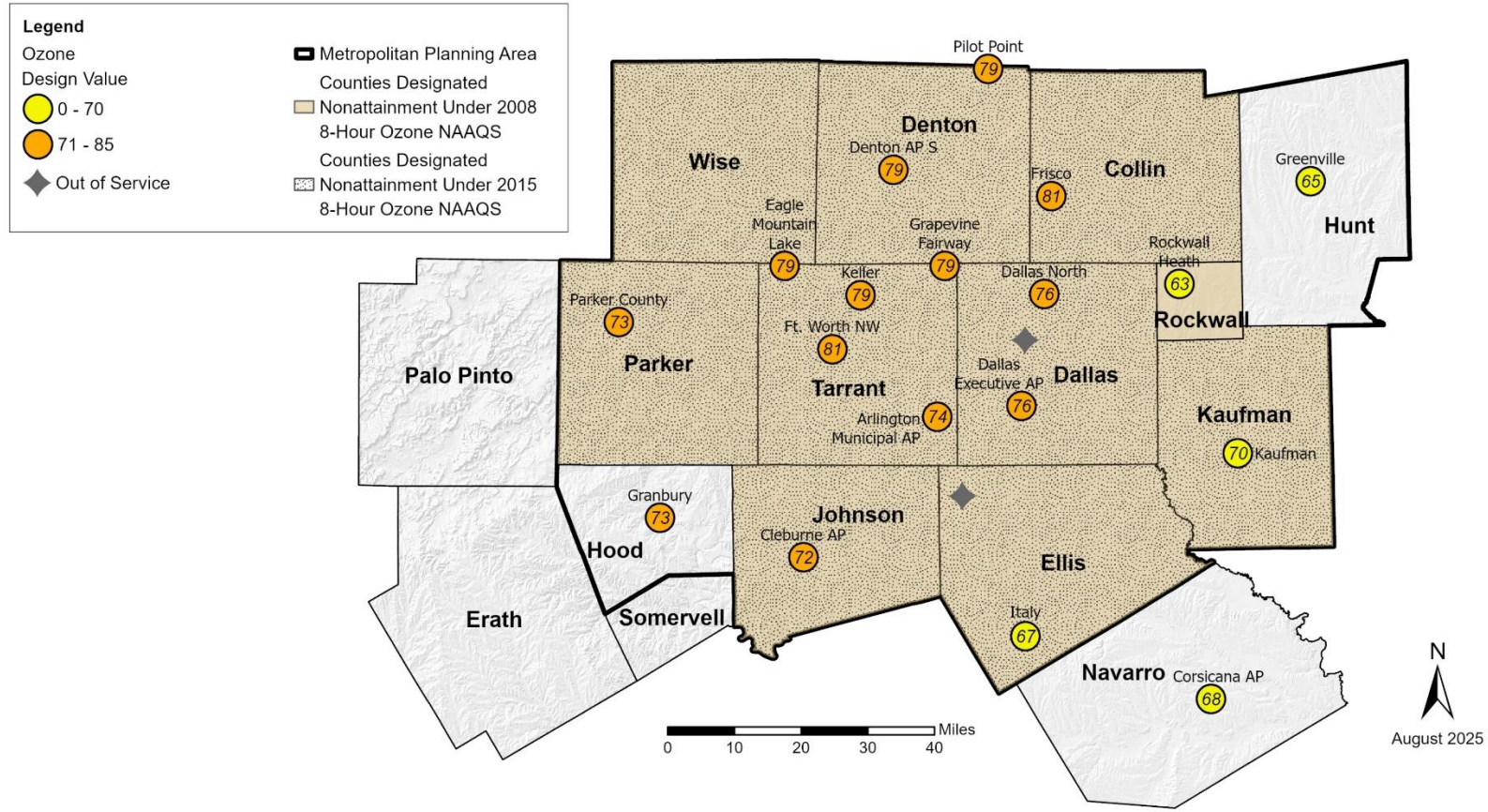
Department of Energy-Designated Clean Cities Coalition

DALLAS - FORT WORTH CLEAN CITIES

Sister Coalitions in Texas:

Alamo Area Clean Cities (San Antonio)
Central Texas Clean Cities (Austin)
Houston-Galveston Clean Cities
Apprentice Coalition: South Texas Clean Cities (Rio Grande Region)

North Central Texas Council of Governments (NCTCOG) Region and Nonattainment Areas

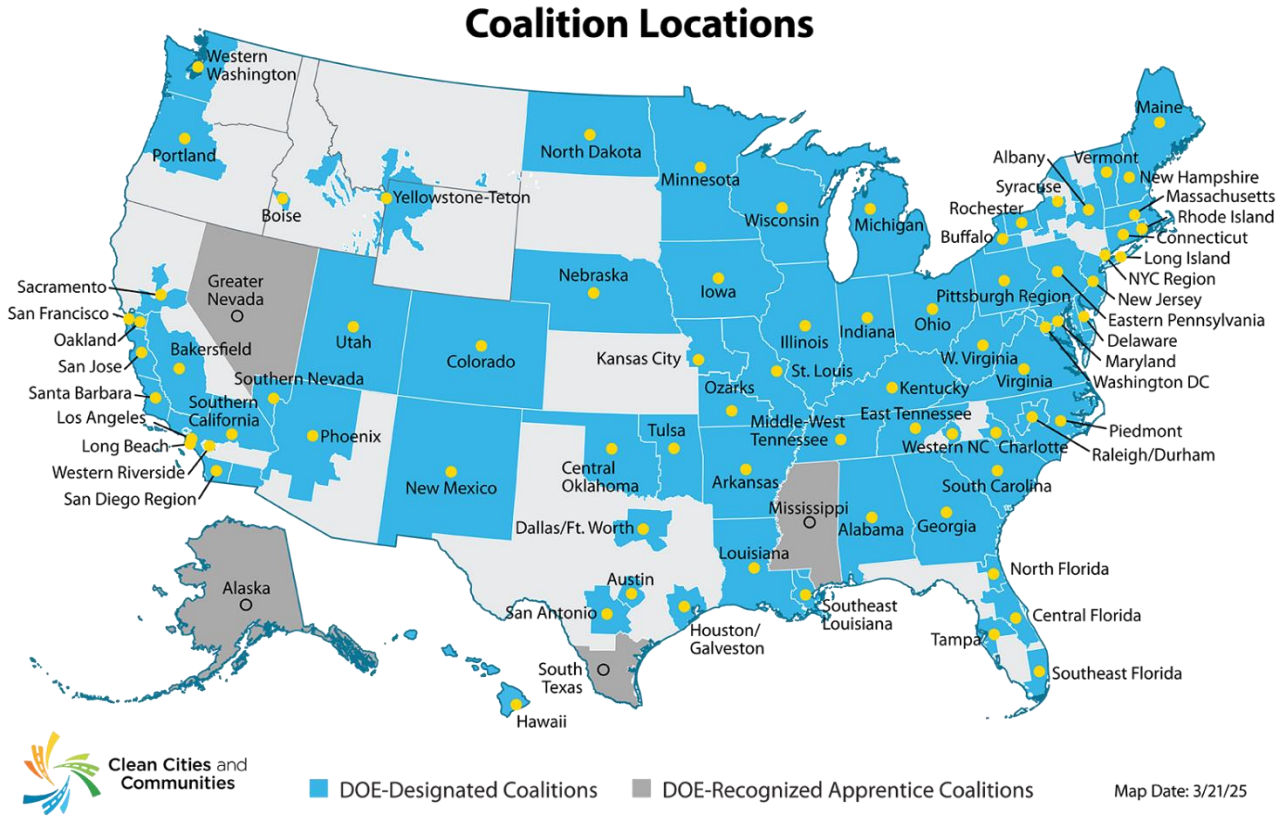


Source: NCTCOG

National Network of Clean Cities Coalitions

More than 85 Clean Cities coalitions with thousands of stakeholders, representing ~90% of U.S. population

Designated by the Department of Energy



Clean Cities Portfolio

- New Mobility Choices and Emerging Transportation Technologies

- Light-, Medium-, and Heavy-Duty Vehicles

- Idle Reduction Measures and Fuel Economy Improvements

- Alternative and Renewable Fuels and Infrastructure

Alternative Fuels and Energy Team

Key Focus Areas & Goals

- Clean Vehicle Initiatives
- Alternative Fuel Infrastructure Initiatives
- Energy Integration & Community Readiness

What We Do

- Funding Support
- Technical Assistance
- Planning the Future
- Raising Awareness

Expanding Your EV Fleet

Have a Plan

Identify Vehicles

- Replacement candidates
- Available EVs

Utilize tools to compare to conventional fuels

- Total Cost of Ownership (TCO) – include infrastructure and incentives
- Emissions reductions

Identify funding

Plan Future Infrastructure

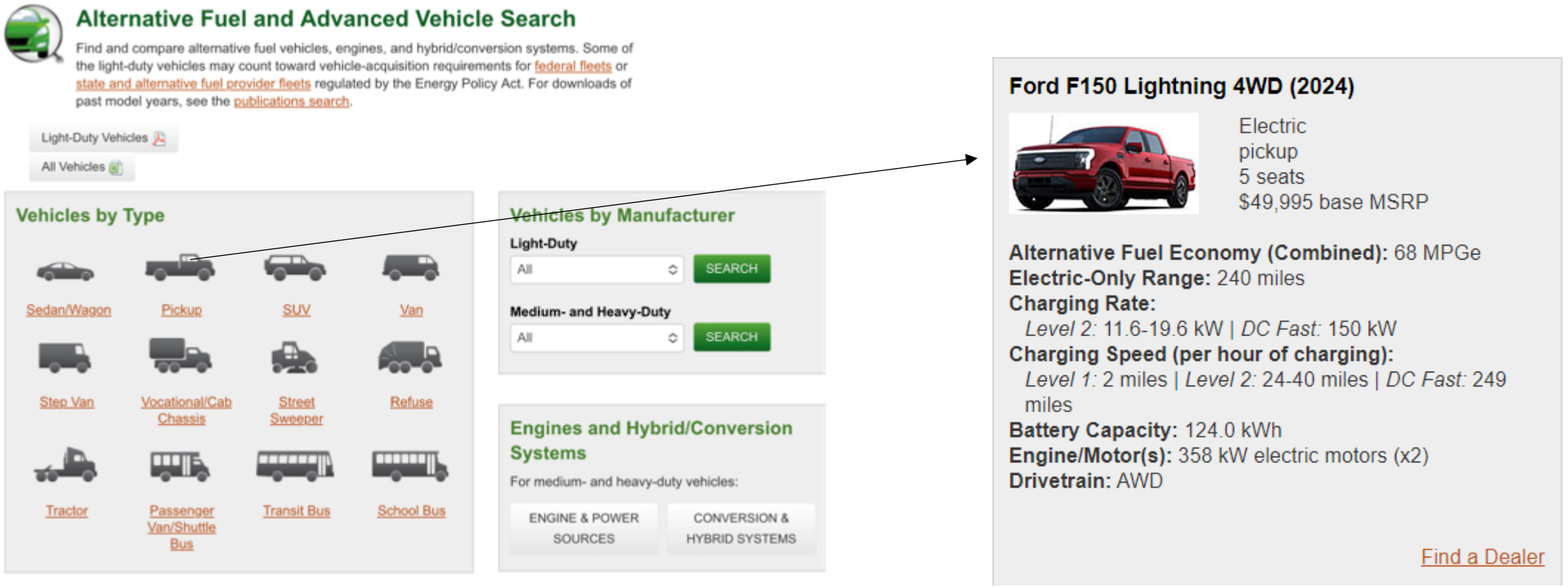
- Appropriate charging level
- Determine if infrastructure expansion is needed

Preparing for EV Expansion

Create/Update a Fleet Inventory	
Identifying Number	VIN, license plate, etc.
Vehicle Description	Warehouse box truck, cherry picker
Gross Vehicle Weight Rating (GVWR)	Determines if classified as light-duty, medium-duty, heavy-duty Classifications vary depending on funding agency -Alternative Fuels Data Center: Maps and Data - Vehicle Weight Classes & Categories (energy.gov)
Engine Fuel Type and Year	Engine year and fuel type determines emissions rating, which can impact air quality benefits, funding amounts, and eligibility for program
Annual Mileage	Grant programs can have minimum usage requirements, mileage helps determine if alternative fuel vehicles could meet operational needs
Operational Needs	Towing needs, frequency of use, cargo space needed, number of passengers

Identify Available Vehicles

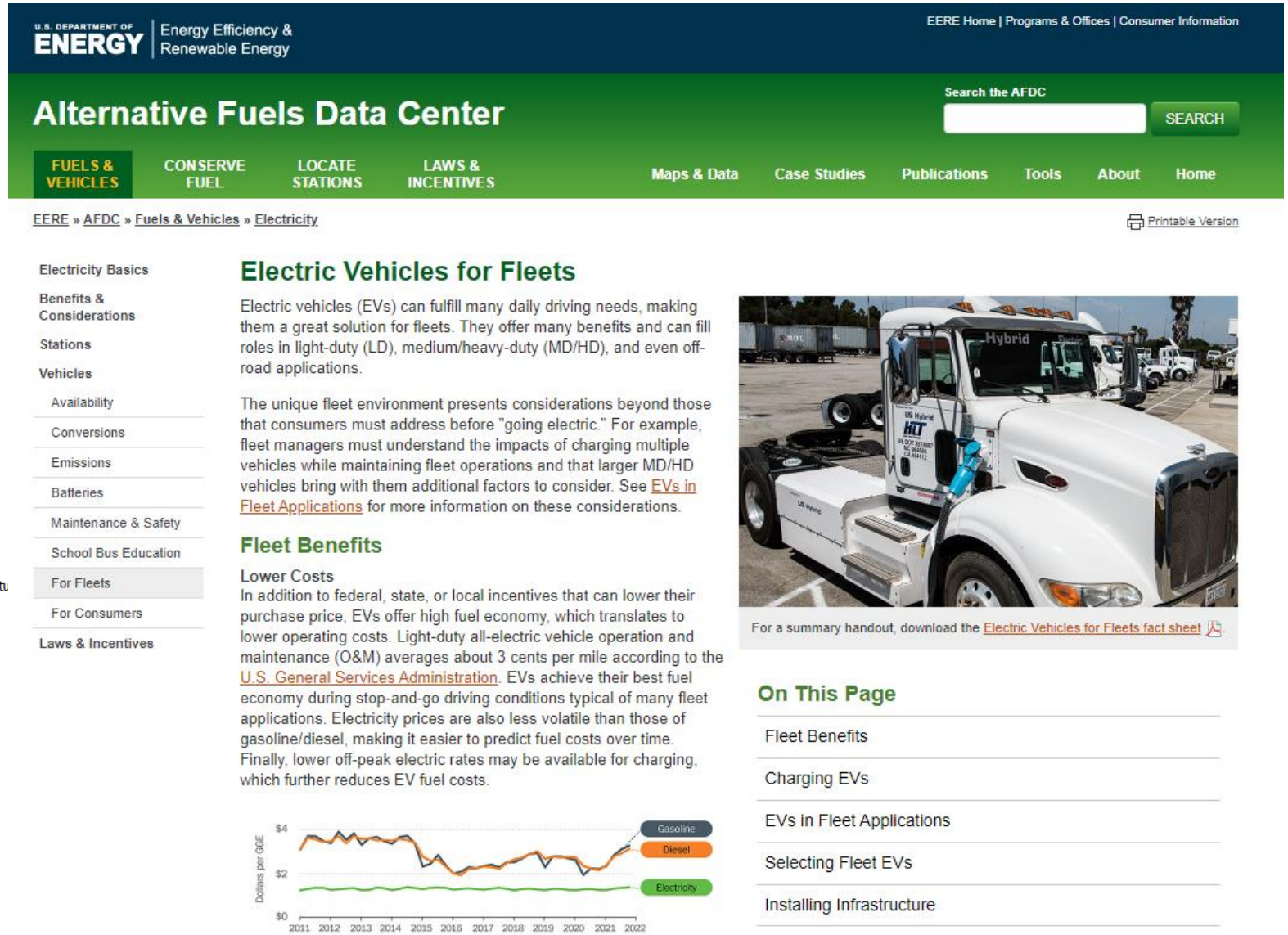
Research available and upcoming vehicles and determine if they will meet operational needs for range, payload and towing capacity, cargo and passenger space, etc.



AFDC Vehicle Search - https://afdc.energy.gov/vehicles/search/

Electrification Resources

- Fleet Benefits
- Charging EVs
- EVs in Fleet Applications
- Selecting Fleet EVs
- Installing Infrastructure
- EVs for Fleets Fact Sheet



U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

EERE Home | Programs & Offices | Consumer Information

Alternative Fuels Data Center

Search the AFDC SEARCH

FUELS & VEHICLES | CONSERVE FUEL | LOCATE STATIONS | LAWS & INCENTIVES | Maps & Data | Case Studies | Publications | Tools | About | Home

EERE » AFDC » Fuels & Vehicles » Electricity

Printable Version

Electricity Basics
Benefits & Considerations
Stations
Vehicles
Availability
Conversions
Emissions
Batteries
Maintenance & Safety
School Bus Education
For Fleets
For Consumers
Laws & Incentives

Electric Vehicles for Fleets

Electric vehicles (EVs) can fulfill many daily driving needs, making them a great solution for fleets. They offer many benefits and can fill roles in light-duty (LD), medium/heavy-duty (MD/HD), and even off-road applications.

The unique fleet environment presents considerations beyond those that consumers must address before "going electric." For example, fleet managers must understand the impacts of charging multiple vehicles while maintaining fleet operations and that larger MD/HD vehicles bring with them additional factors to consider. See EVs in Fleet Applications for more information on these considerations.

Fleet Benefits

Lower Costs

In addition to federal, state, or local incentives that can lower their purchase price, EVs offer high fuel economy, which translates to lower operating costs. Light-duty all-electric vehicle operation and maintenance (O&M) averages about 3 cents per mile according to the U.S. General Services Administration. EVs achieve their best fuel economy during stop-and-go driving conditions typical of many fleet applications. Electricity prices are also less volatile than those of gasoline/diesel, making it easier to predict fuel costs over time. Finally, lower off-peak electric rates may be available for charging, which further reduces EV fuel costs.

For a summary handout, download the Electric Vehicles for Fleets fact sheet.

On This Page

- Fleet Benefits
- Charging EVs
- EVs in Fleet Applications
- Selecting Fleet EVs
- Installing Infrastructure

Fleet Electric Vehicle Implementation Checklist

Use this checklist to ensure your fleet is prepared to implement electric vehicles and charging infrastructu

Selecting Vehicles

- ☐ Assess the fleet's driving/duty requirements, including daily driving requirements, environmental factors, heating/cooling loads, and auxiliary loads
- ☐ Assess applicable mandates or policies
- ☐ Explore federal, state, and local incentives, and determine budget
- ☐ Determine which EVs are available (considering both all-electric vehicle and PHEV options) that meet the requirements above
- ☐ Work with the vehicle provider(s) to verify the vehicle's:
  - ☐ Availability, cost, and warranty (including battery coverage)
  - ☐ Applicability to fleet needs
  - ☐ Charging needs and options for the number of vehicles needed
  - ☐ Maintenance and support, including local servicing availability and repair/maintenance beyond the warranty period

Electrification Tools

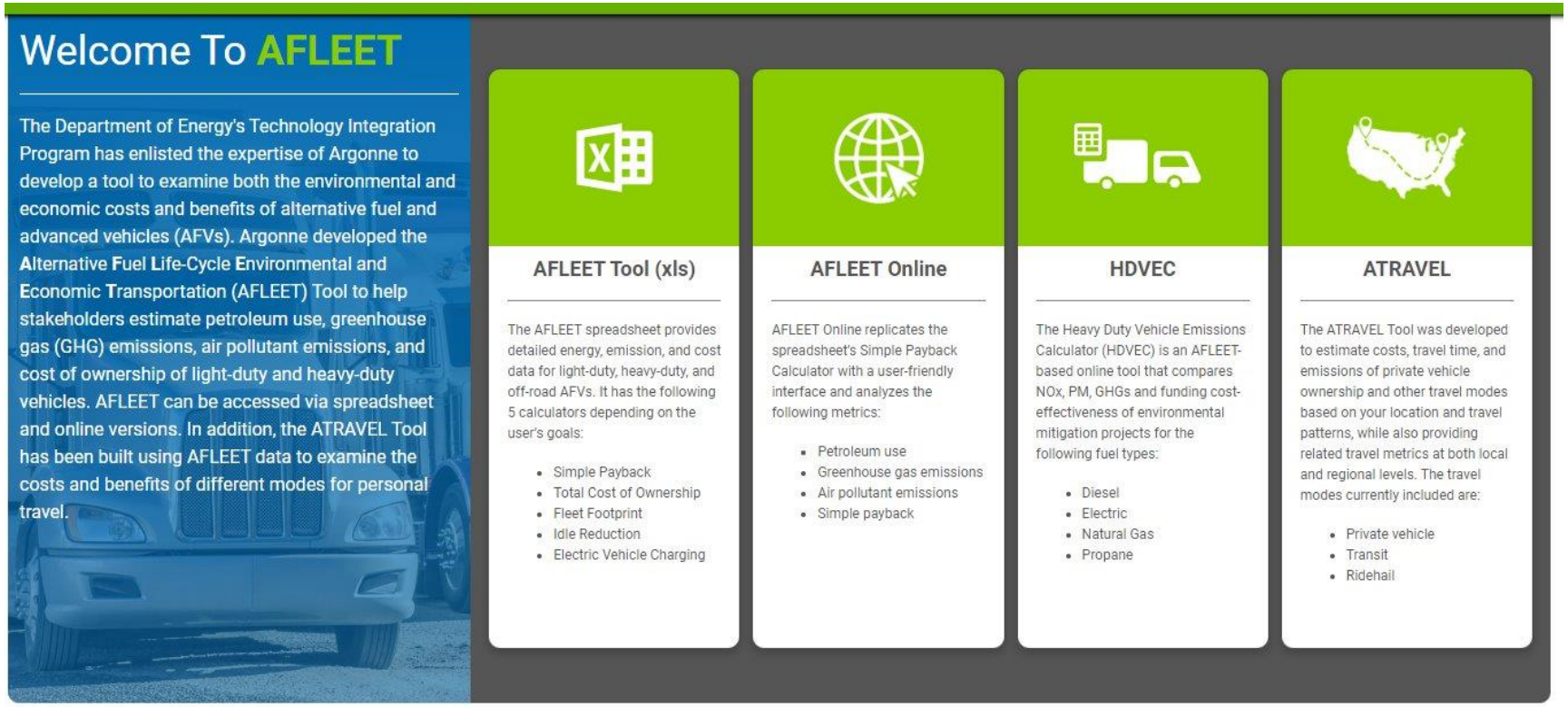
Alternative **F**uel **L**ife-Cycle **E**nvironmental and **E**conomic **T**ransportation (AFLEET) Tool Available at www.dfwcleancities.org/resources ➡ "Estimate Emissions & Vehicle Cost"

AFLEET Online:

- Easy online tool
- Simple payback

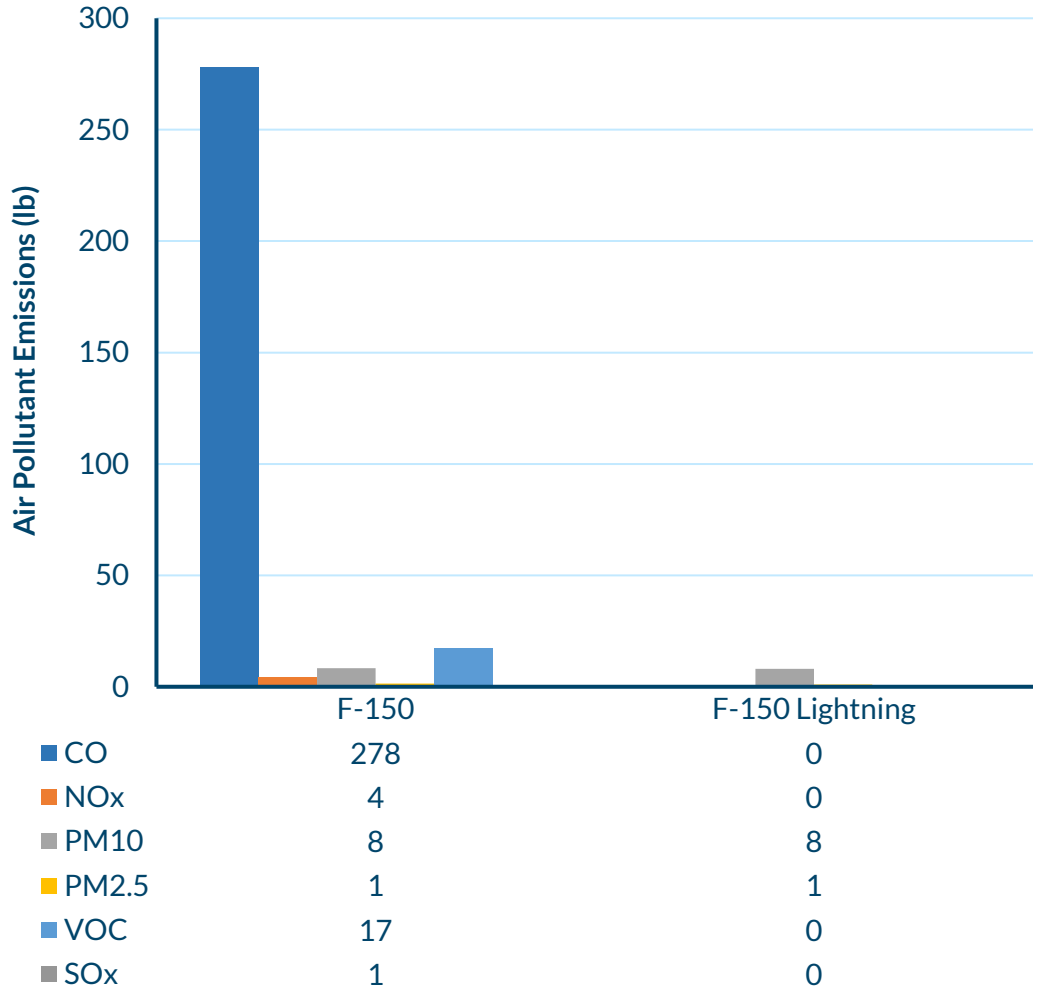
AFLEET Tool (.xlsx):

- Fleet footprint
- Infrastructure
- Simple Payback
- Total Cost of Ownership

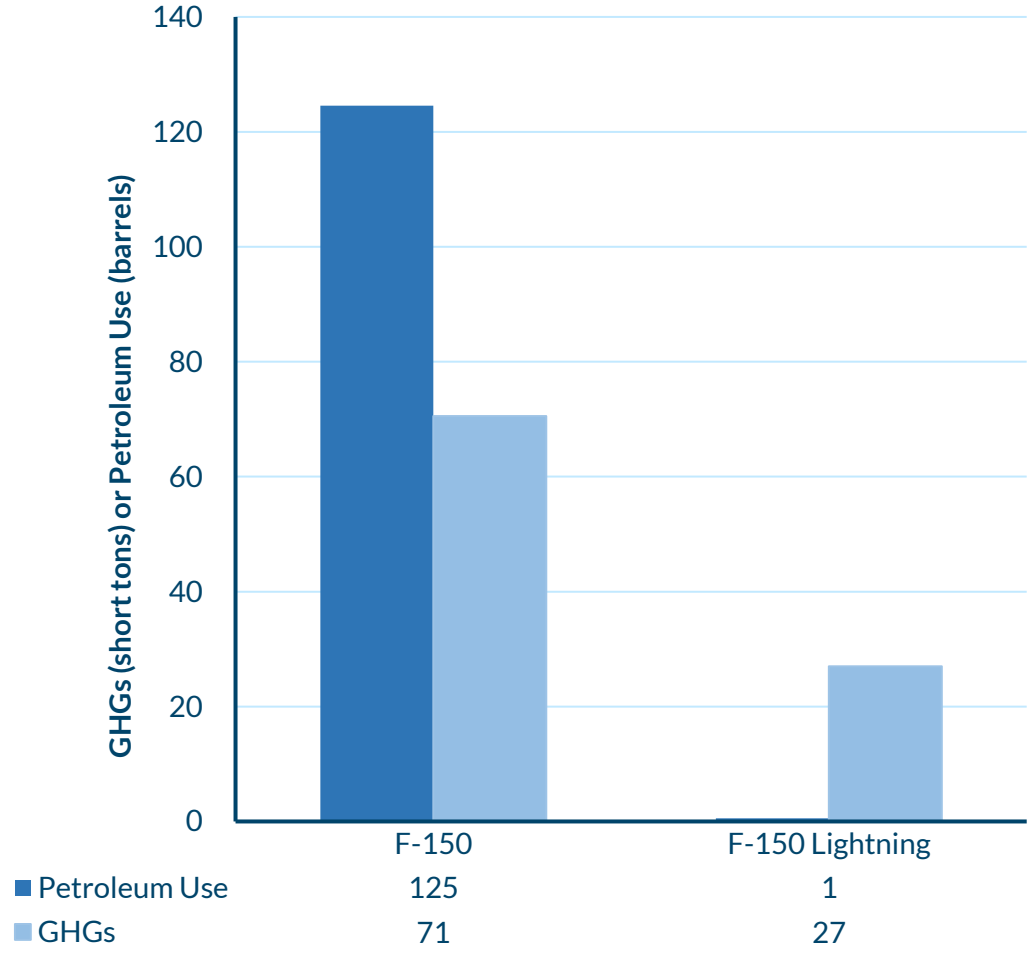


Emissions Comparison – F-150 Truck

Lifetime Vehicle Operation Air Pollutants



Lifetime Well-to-Wheels Petroleum Use and GHG Emissions



Considerations for Vehicle Funding

Can a vehicle be scrapped?

Fuel type of new vehicle?

Is infrastructure funding needed?

Will other funding be used for the same vehicle?

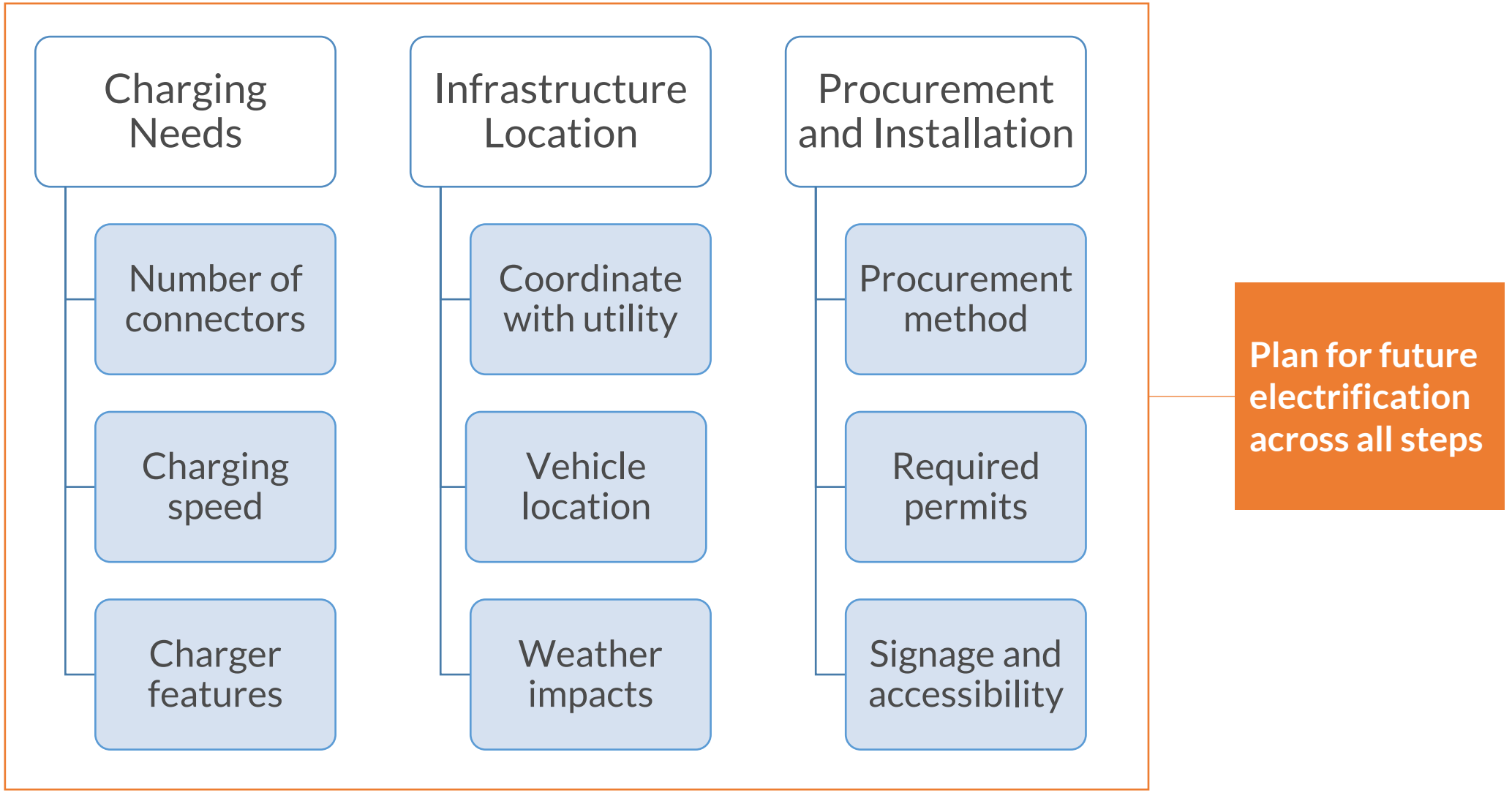
When will the new vehicle be purchased?

Vehicle Funding Opportunities

Program	Eligible Activities	Funding Amount	Key Dates
Texas Volkswagen Emission Mitigation Program (TxVEMP) All-Electric Grant Round	Replace or repower Class 4-8 heavy-duty diesel vehicles, equipment, and locomotive freight switchers with battery-electric and hydrogen fuel cell electric versions Includes funding for infrastructure	Governmental entities: Up to 100% of the incremental cost of project Nongovernmental entities: Up to 75% of the incremental cost of project	Open Now through August 31, 2026
North Texas Zero-Emission Vehicle Project	Replace existing Class 6 and 7 heavy-duty vehicles with battery-electric and hydrogen fuel cell electric vehicles Includes funding for infrastructure and workforce development	Battery-electric vehicle: 33% to 75% of new vehicle Hydrogen-fuel cell vehicle: 60% to 80% of new vehicle	Call for Projects Expected to Open October 24, 2025

Research more funding here: www.nctcog.org/aqfunding

Planning EV Infrastructure



EV Parking Infrastructure Specifications

EV CAPABLE SPACE

Electrical Panel Capacity + Conduit

EV READY SPACE

EV Capable

+ Installed Full Circuit

EVSE SPACE

Install EV Charing Station

Graphics Source: Southwest Energy Efficiency Project

4x-6x

more expensive

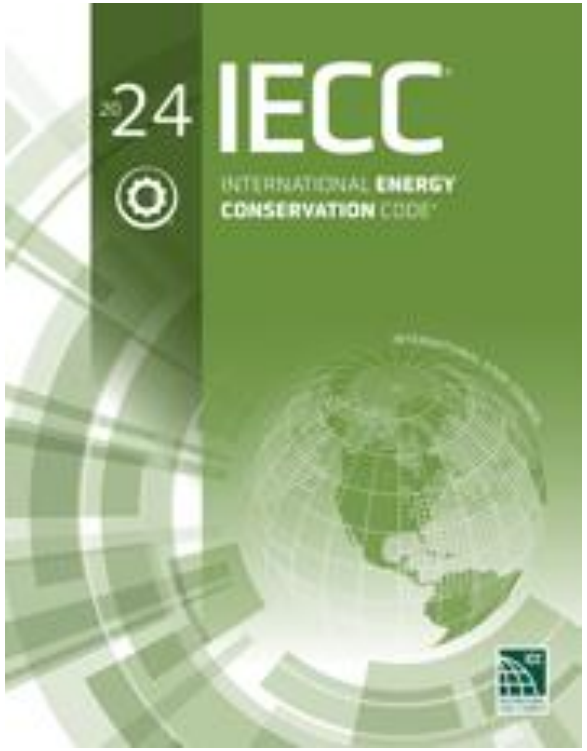
The cost to install EV Ready infrastructure post-construction compared to at time of new construction. Source: Alternative Fuels Data Center

EV Ready Building Codes and Standards

International Code Council:

International Energy Conservation Codes (IECC) - Updated May 2024

- Minimum parking space requirements for EV Capable, EV Ready, and EVSE Spaces*
- System capacity and circuit capacity requirements
- Commercial: Appendix CG Electric Vehicle Charging Infrastructure
- Residential: Appendix RE Electric Vehicle Charging Infrastructure



Benefits of integrating 2024 IECC into building and parking requirements

- Help your community be EV ready
- Earn points toward Charging Smart designation
- Cost savings to facility owner and utility for including in new construction vs retrofit

dfwcleancities.org/evreadiness

*EVSE Space was formerly referred to as EV-Installed

Mobile Charging Options

Completely Mobile

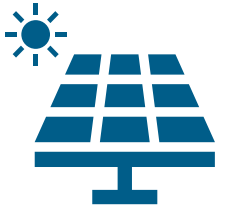
Chargers connected to a small generator or battery

Use: Emergency charging or charging-as-a-service

Semi-Permanent

Chargers affixed to skids, storage containers, etc.

Use: Temporary solution or to avoid infrastructure costs



Off-Grid

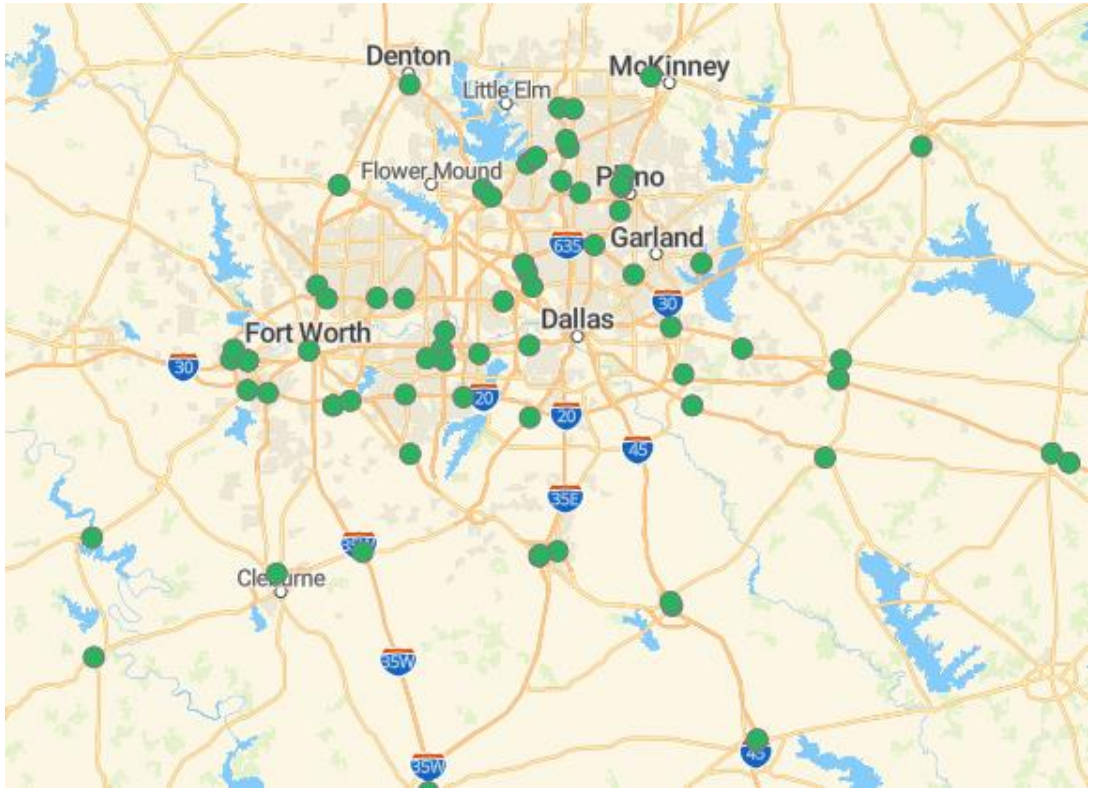
Chargers connected to solar, wind, battery, or generator power sources

Use: Emergency charging, remote locations, or to offset energy costs

Heavy-Duty EV Infrastructure in Texas

Available Charging Sites for Medium/Heavy-Duty Trucks

Texas: 214 Sites For Class 3-6; 2 Sites for Class 7-8



Map Source: AFDC Station Locator

Texas EV Infrastructure Plan Phase II – *Help Us Help You!*

www.publicinput.com/nctcogevcharging

Suggest locations for public-access charging stations to serve medium- and heavy-duty trucks; provides options for "opportunity charging" while on route and/or reduces need for installing chargers at distribution centers

- Drop a pin on the TxDOT Interactive Map
- Leave a Comment on the NCTCOG webpage
- Email NCTCOG staff

Infrastructure Funding Opportunities

Program/Incentive	Eligible Activities	Funding Amount	Deadline to Apply
Alternative Fuel Vehicle Refueling Property Credit	Installation of qualified fueling equipment, such as EV charging infrastructure in eligible locations **Available to tax-exempt entities through the new DIRECT PAY option**	Up to 30% tax credit	Open Now through June 30, 2026
TERP Alternative Fueling Facilities Program	Funds new construction or the expansion of existing alternative or natural gas fueling facilities	Up to 50% or maximum of $600,000, whichever is less, for fuels other than natural gas (including EV charging)	Opens October 15, 2025

Research more funding here: www.nctcog.org/aqfunding

Steps to Electrification Summary

Identify Electrification Opportunities

- Assess fleet inventory and determine upcoming replacements
- Determine operational needs for potential replacements
- Identify high usage EV candidates

Plan Vehicle Procurement

- Ensure Available EVs meet operational needs
- Identify available incentives
- Determine procurement method

Plan Infrastructure

- Coordinate with utility
- Confirm location and features
- Identify available incentives
- Determine procurement method
- Future proof

Tools and Resources

Alternative Fuels Data Center (AFDC) – Information, data, and tools on alternative and renewable fuels, advanced vehicles, and other fuel saving measures

- Alternative Fueling Station Locator – Locate alternative fuel stations; route mapping capability
- Electric Vehicles for Fleets – Resources for fleet electrification, including available vehicle models and electrification checklist

AFLEET – Tool to compare new alternative fuel vehicles to gasoline (light-duty) and diesel (heavy-duty) vehicles, available as a spreadsheet or simplified online version

Dallas-Fort Worth Clean Cities – Future/past event materials and recordings; Current/past EV registration data statewide and in North Texas

NCTCOG AQ Funding – Regularly updated list of currently open funding programs

Texas Emissions Reduction Plan (TERP) Funding – Financial incentives to eligible individuals, businesses, or local governments to reduce emissions from polluting vehicles and equipment

Zero-Emissions Technology Inventory – Search current and upcoming zero-emission medium- and heavy-duty vehicles

Get Involved with DFWCC

Contact us at cleancities@nctcog.org for any questions on fleet electrification, funding opportunities, or other inquiries

Upcoming webinars and events posted regularly at dfwcleancities.org/events

Sign up for DFWCC weekly email list and follow DFWCC LinkedIn at: dfwcleancities.org/get-involved

Contact Us

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DALLAS - FORT WORTH CLEAN CITIES

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@NCTCOGTrans

linkedin.com/showcase/dfwcleancities/

Charge: Electrification Planning NCTCOG

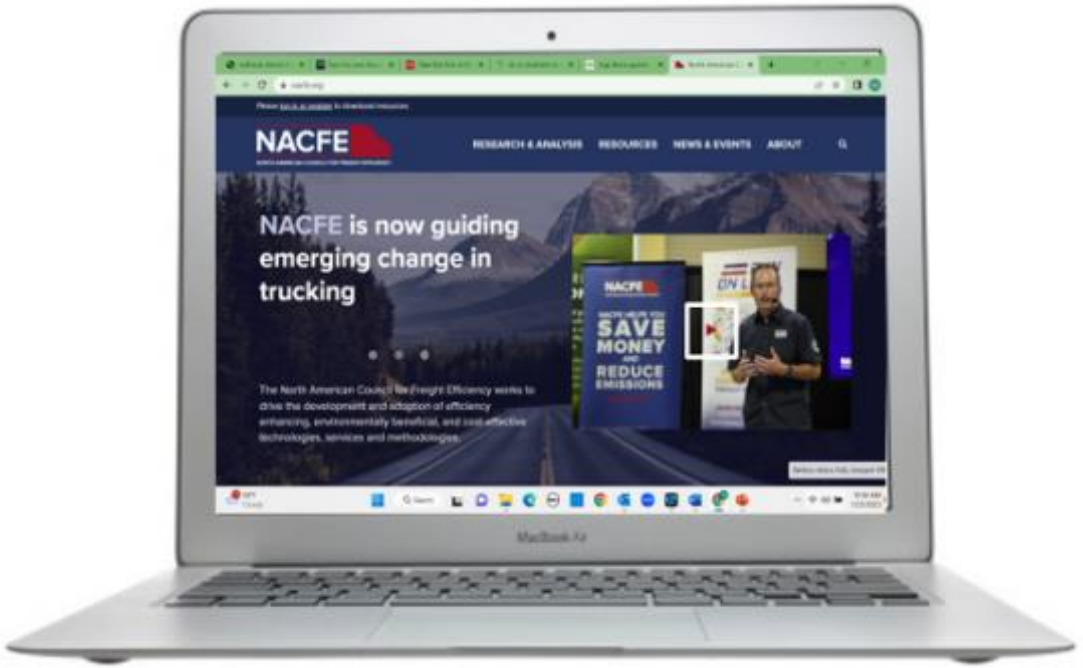
October 15, 2025

Mike Roeth: Executive Director

RUN ON LESS MESSY MIDDLE

NACFE
NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

North American Council for Freight Efficiency



- Unbiased, fuel agnostic, non-profit
- Mission to double freight efficiency
- All stakeholders
- Scale available technologies, guide emerging change and Run on Less demonstrations.

www.NACFE.org

www.RunonLess.com

NACFE
NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

Run on Less by NACFE

2017

RUN ON LESS BY NACFE

[Long Haul](#)

7 Fleets

10.1 MPG

2019

RUN ON LESS REGIONAL

[Regional Haul](#)

10 Fleets

8.3 MPG

2021

RUN ON LESS ELECTRIC

[All BEVs](#)

13 Fleets

EV Truck Pilots

2023

RUN ON LESS ELECTRIC DEPOT

[BEV Depots](#)

10 Depots

Infrastructure

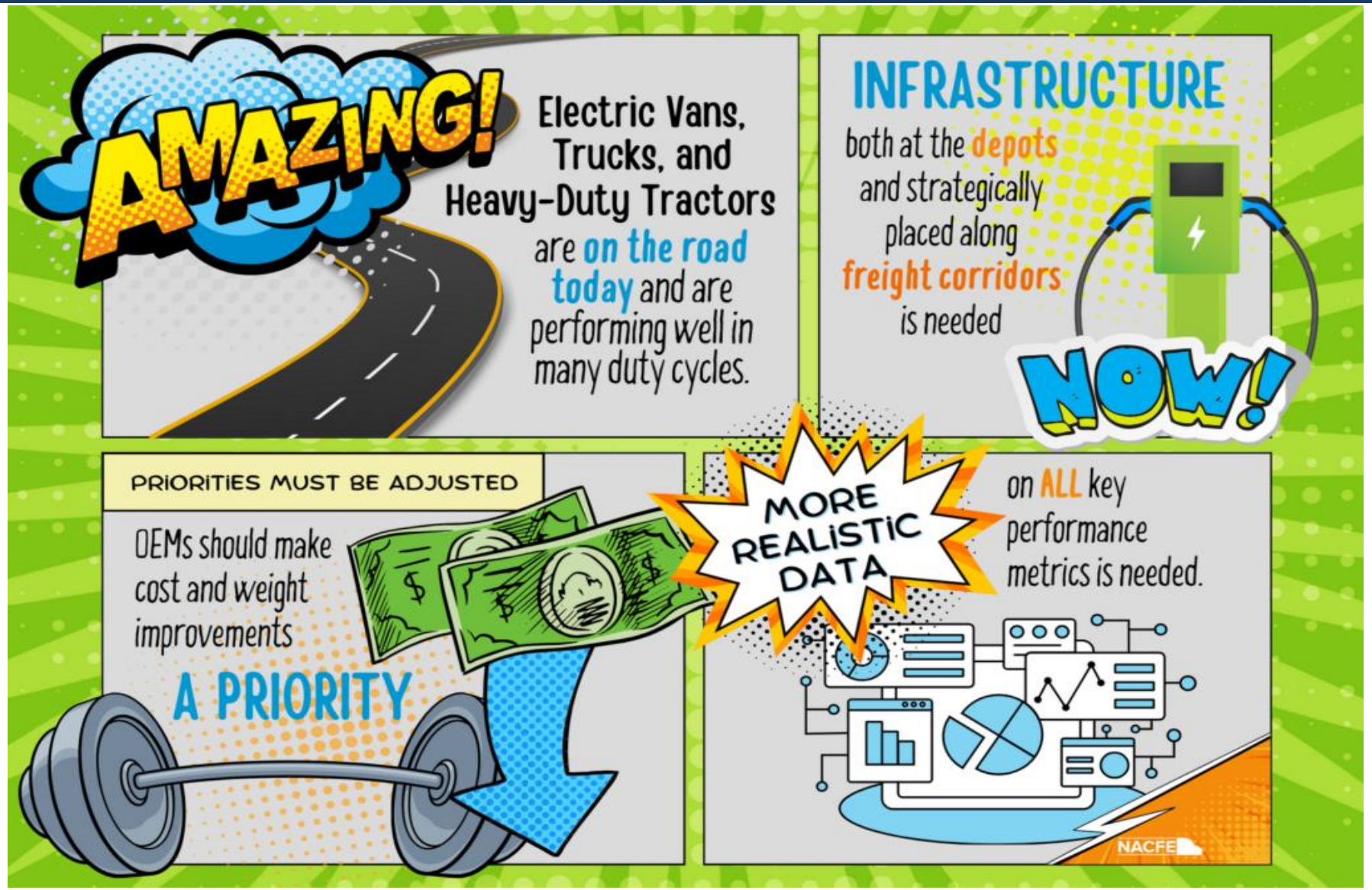
2025

RUN ON LESS MESSY MIDDLE

[Long Haul](#)

Many Solutions

RoL-E DEPOT 2023



https://runonless.com/run-on-less-electric-depot-reports/

Run on Less – Messy Middle

RUN ON LESS MESSY MIDDLE

Run on Less – Messy Middle: Will bring clarity to long-haul decarbonization by focusing on heavy-duty Class 8 sleepers and day cabs in long-haul return-to-base and over-the-road duty cycles.

Freight Vehicle Segmentation

Vehicle Class	Market Segment
Class 2b-6	Vans & Step Vans 
Class 6	Medium-Duty Box Trucks 
Class 7 & 8	Regional Haul Return-to-Base *Short • Medium • Long* 
	Long Haul Over-the-Road 

NACFE
NORTH AMERICAN COUNCIL FOR FREIGHT EFFICIENCY

What is “The Messy Middle”?

PRESENT

- Technology immature
- Many unknowns & challenges

"MESSY MIDDLE"

- Many optimization solutions
- Growing infrastructure
- Multi-fuel choices
- Innovation & maturation
- Facts replacing estimates
- Learning curves

[Messy Middle Report]

FUTURE 2050

- Fast charging
- Hydrogen everywhere
- Long-life, low-cost batteries
- Acceptable weights & costs

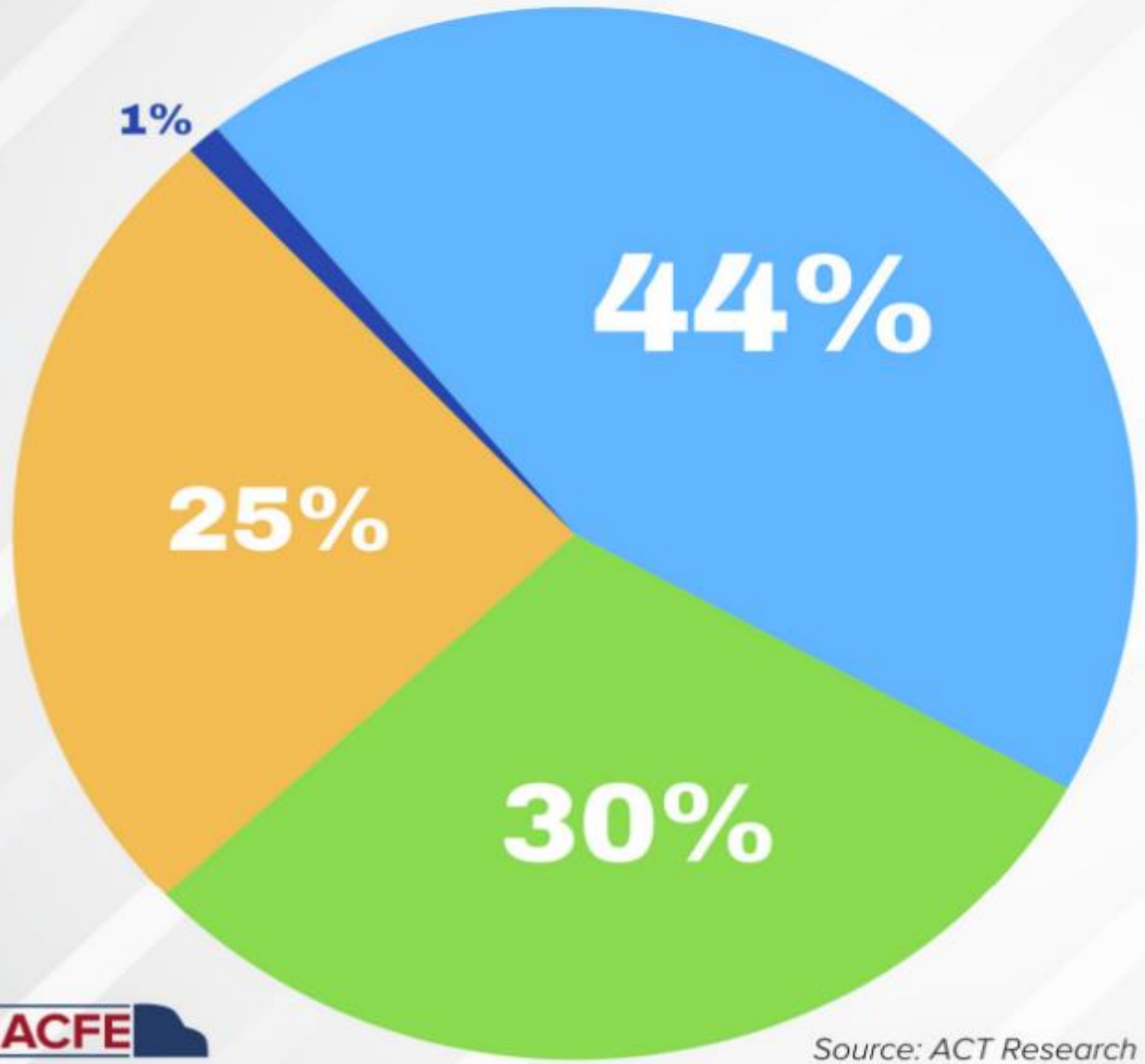
- Legacy Diesels
- Natural Gas

- Diesel Advancements
- Natural Gas
- Hybrids
- Hydrogen ICE

- Battery Electric
- Hydrogen Fuel Cells
- Renewable Natural Gas & Diesel
- More

- CBEV & HFCEV from Clean Energy

Class 8 HD Truck Production By Type



Sleeper Tractor

Long Haul Over-the-Road • some Long Haul Return-to-Base

Day Cab Tractor

Long Haul Return-to-Base

Day Cab Work Truck

Dump Truck • Mixer • Refuse • Terminal Tractor • Other Duty-Specific Applications

Sleeper Work Truck

Expeditor Truck • Logging

NACFE

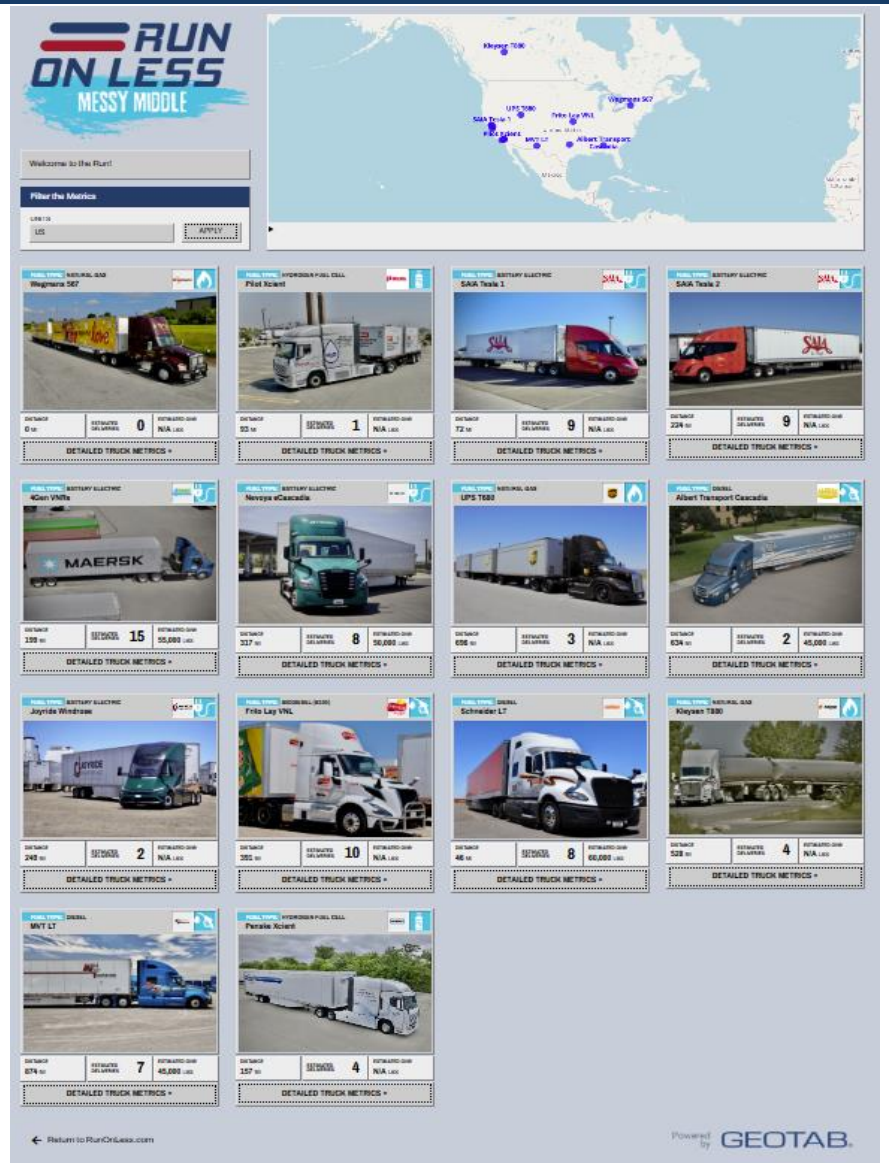
Source: ACT Research

Run on Less – Messy Middle

- Feb to July 2025
- Content still available; Recordings, presentations and support materials.
- 12 sessions and 3 workshops = 18 hours
- 35 speakers + 9 NACFE
- 797 registrants and 220 attendees on average.

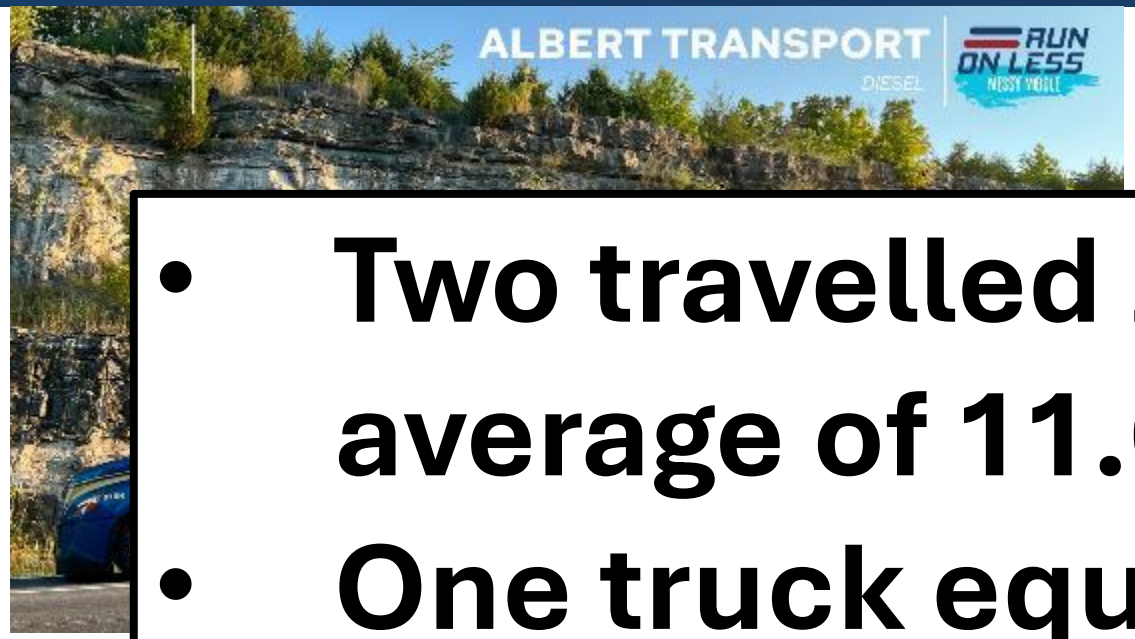
Site Visits – Profiles' Development

September Data

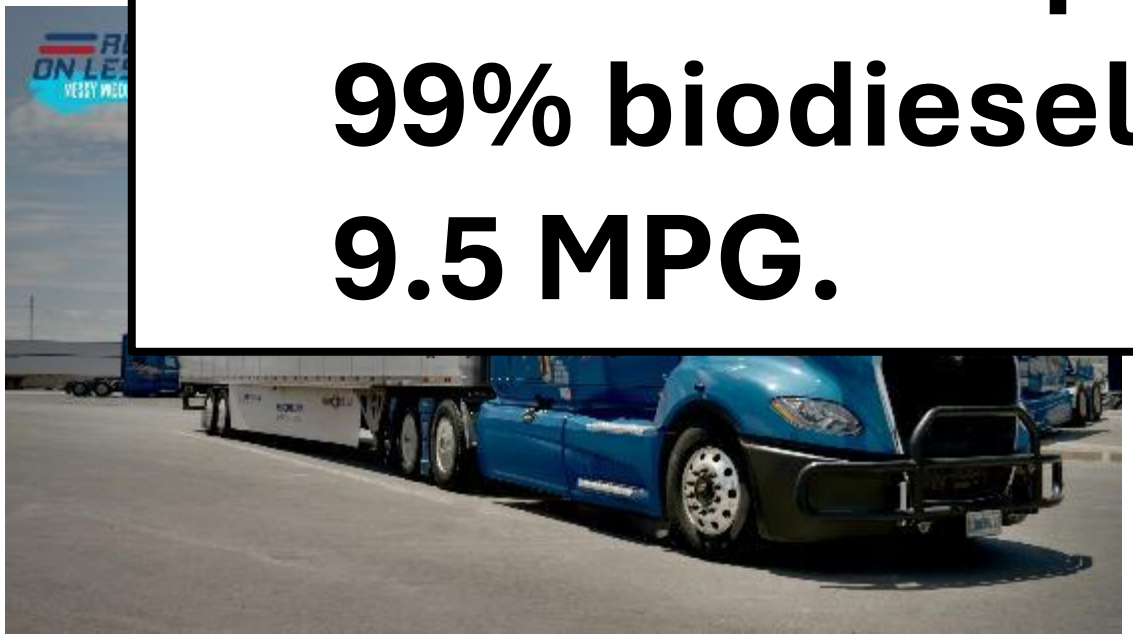


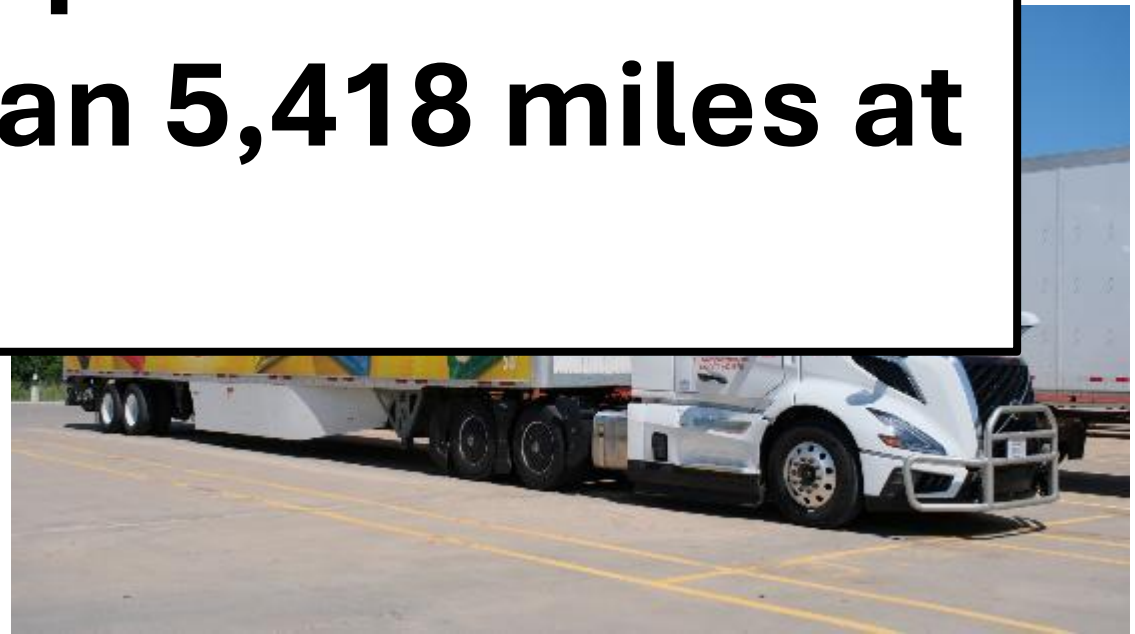
- 18 Days ended Sept 25
- 14 Trucks
- Similar metrics for all four solution alternatives

Diesel Fleets

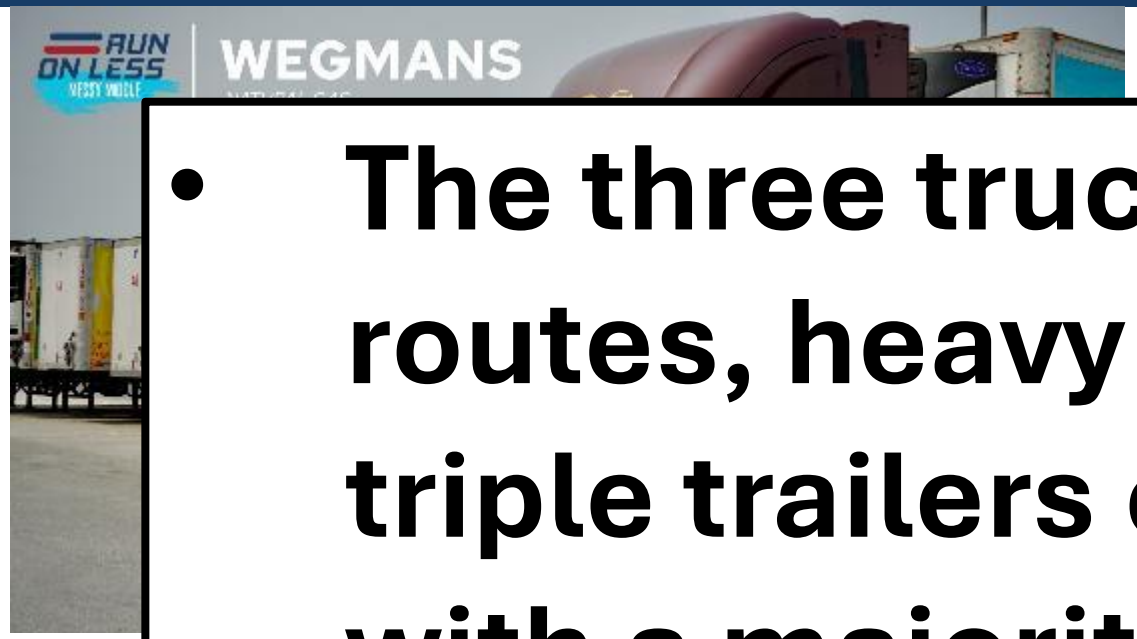


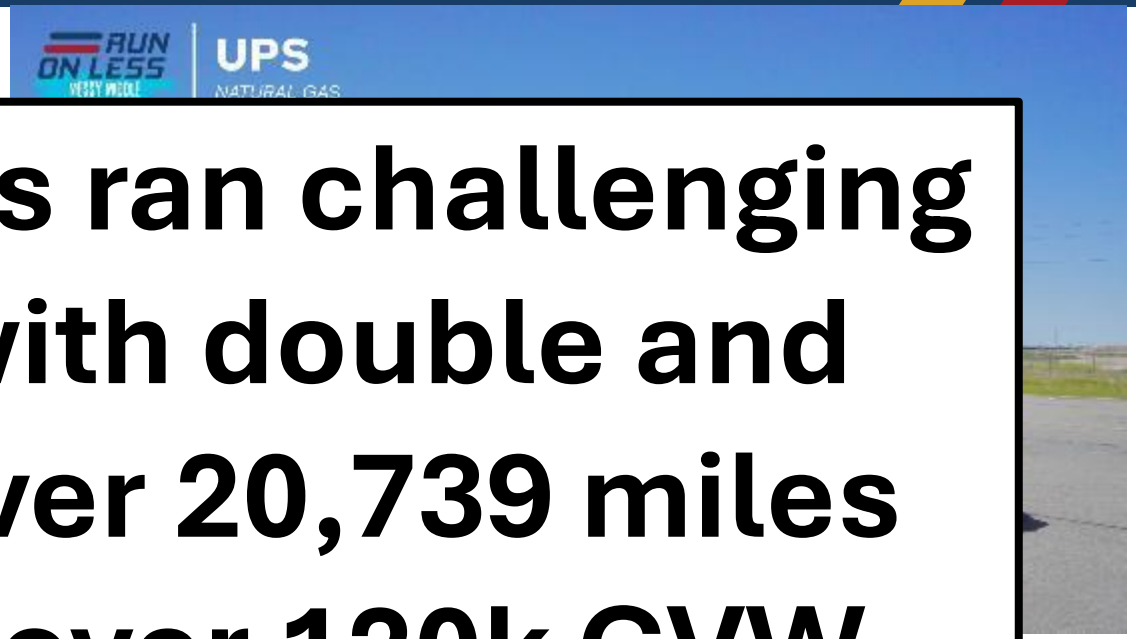
- Two travelled 22,550 miles at an average of 11.6 MPG.
- One truck equipped to run on 99% biodiesel ran 5,418 miles at 9.5 MPG.





Natural Gas Fleets





- The three trucks ran challenging routes, heavy with double and triple trailers over 20,739 miles with a majority over 120k GVW.
- Fleets used RNG with a reduced carbon intensity.

Kleysen

RUN ON LESS
MESSY MIDDLE

Filter the Metrics

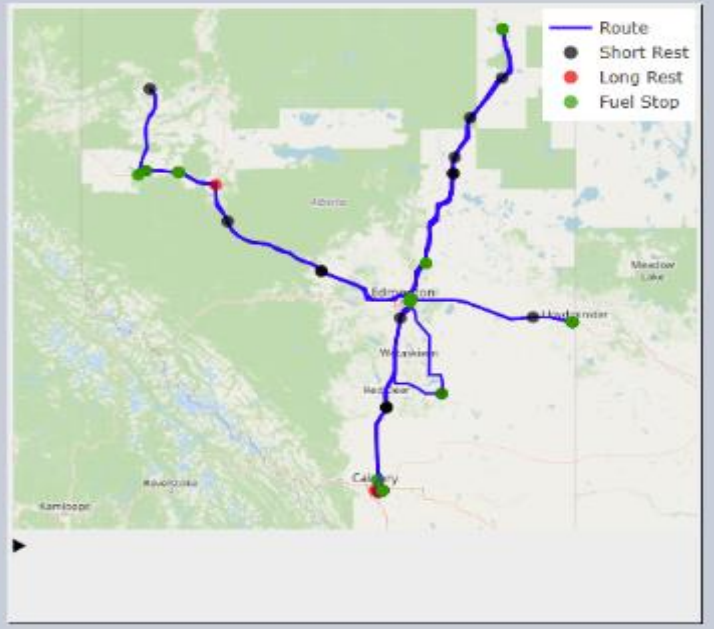
FROM	TO	UNITS	
Day 1	Day 18	US	APPLY

« RETURN TO INDEX

LINK TO THIS

FUEL TYPE: NATURAL GAS
Kleysen T880

DISTANCE	6,277 MI	ESTIMATED DELIVERIES	65	ESTIMATED GVW	N/A
TEMPERATURE	53 F	WIND	10 MPH W	CONDITIONS	CLOUDS

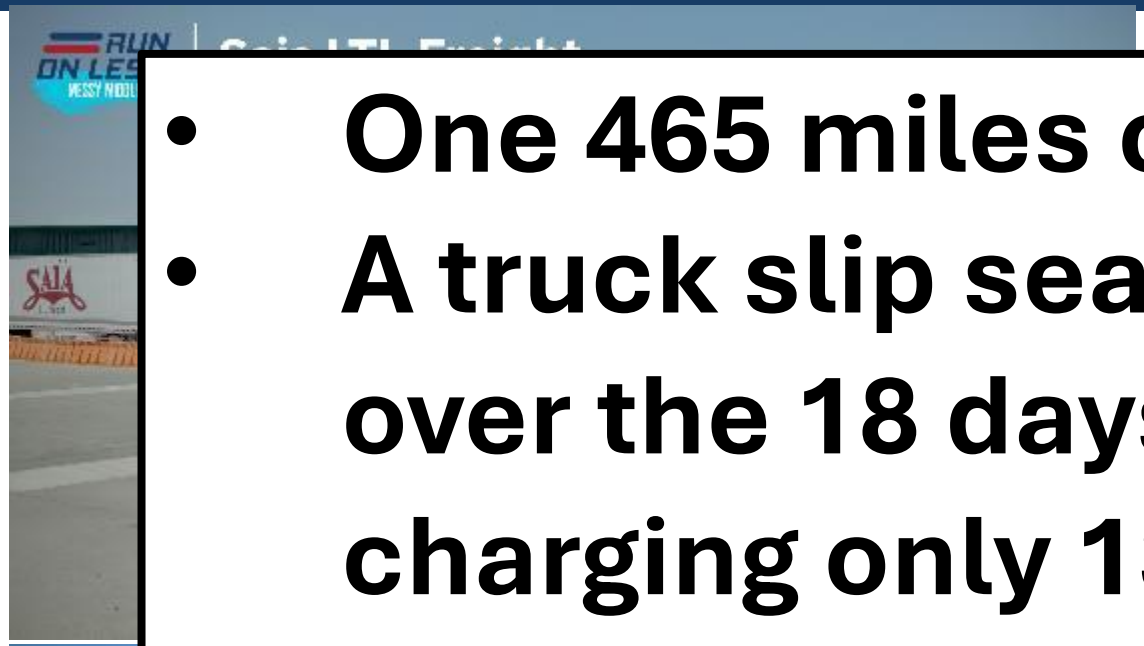


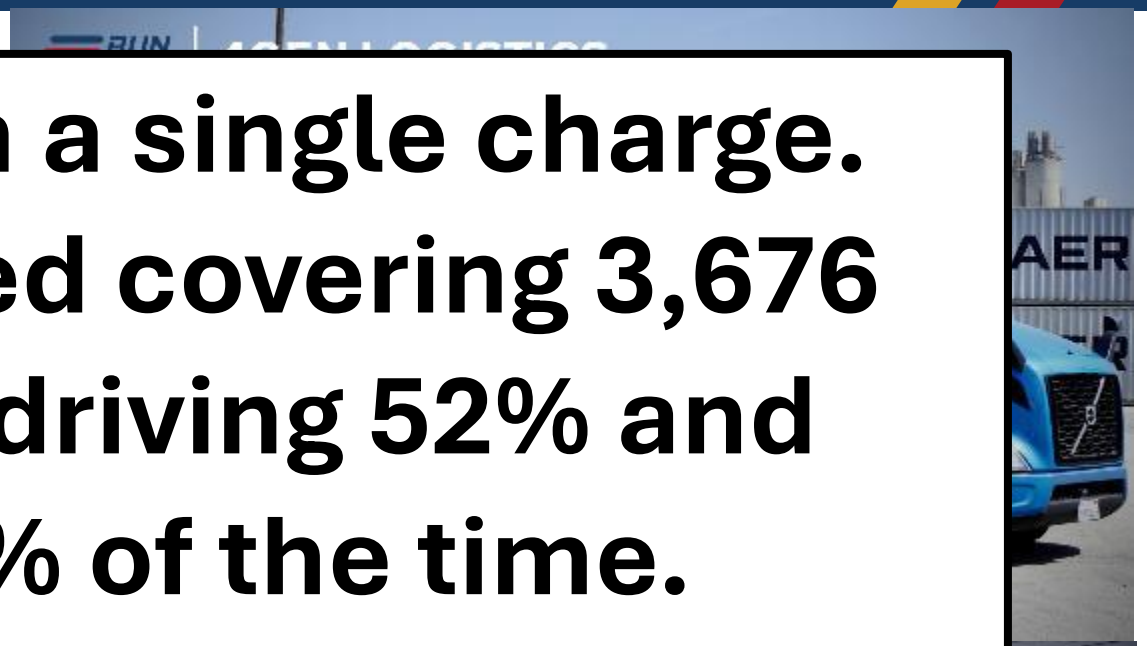
Fuel Level and Speed

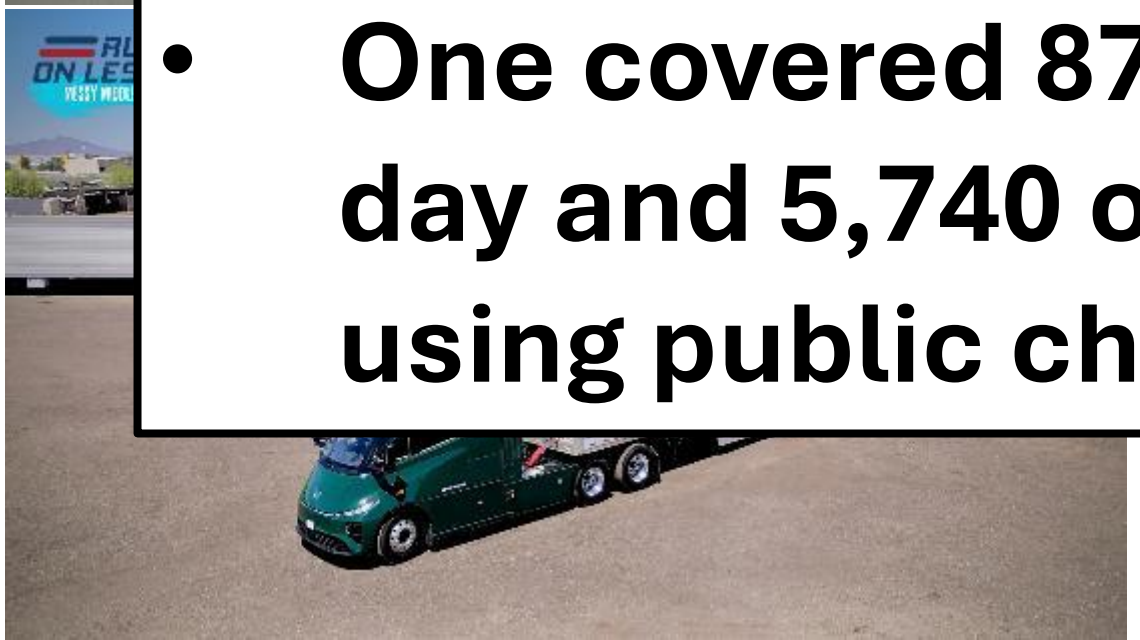
Fuel Level and Distance

Battery Fleets

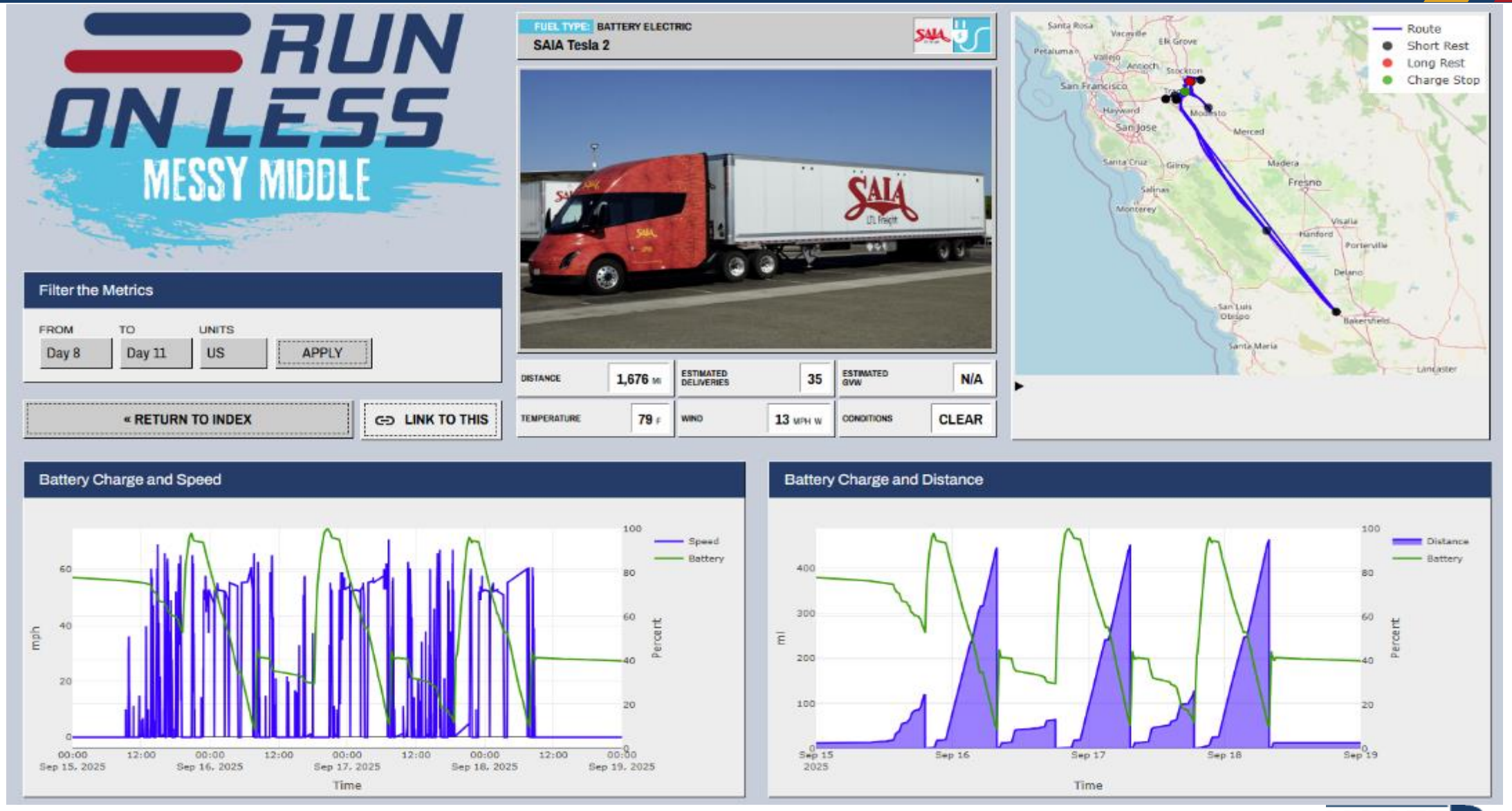
- One 465 miles on a single charge.
- A truck slip seated covering 3,676 over the 18 days driving 52% and charging only 13% of the time.
- One covered 875 miles in a single day and 5,740 over the 18 days only using public charging.



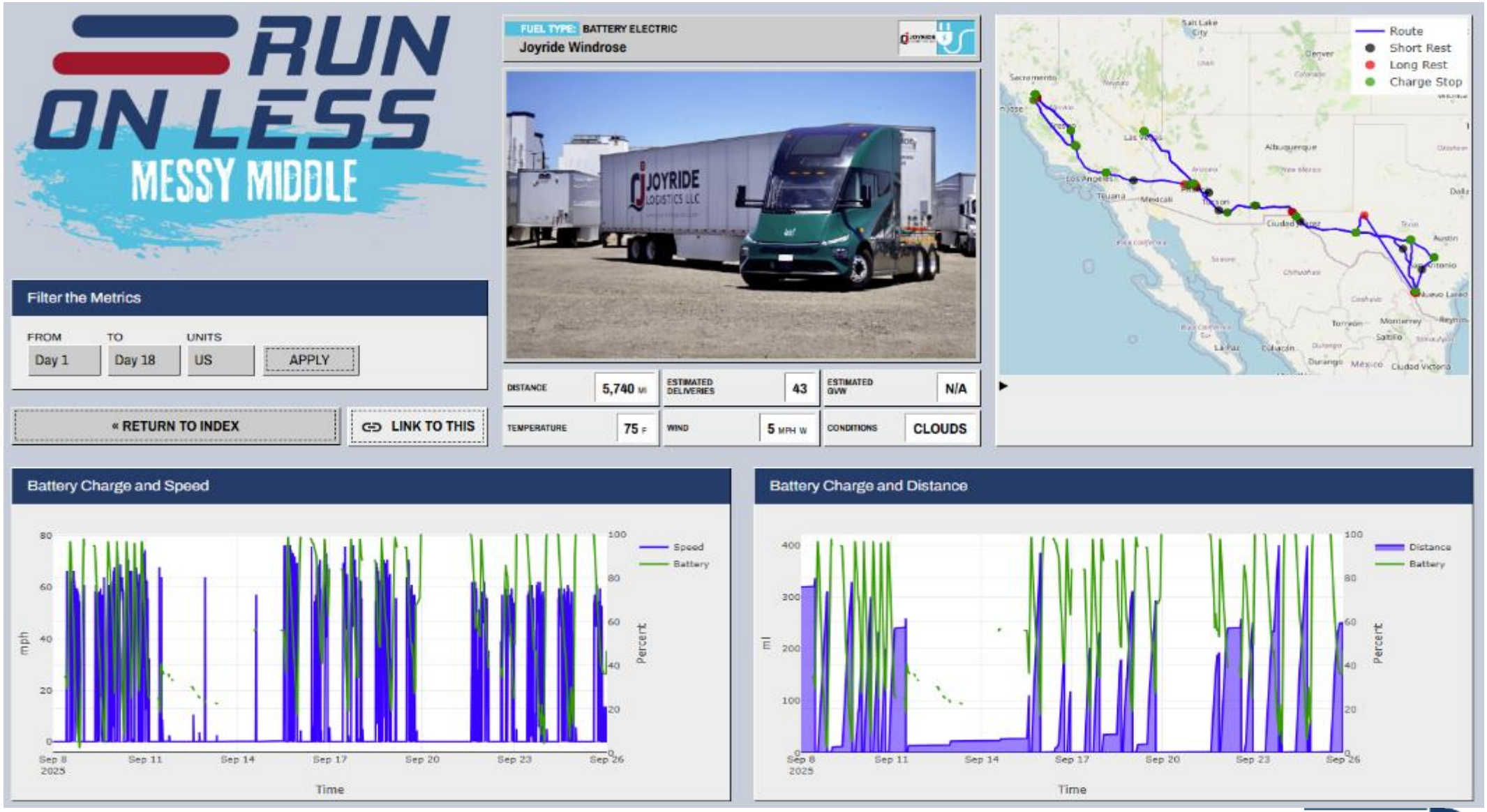




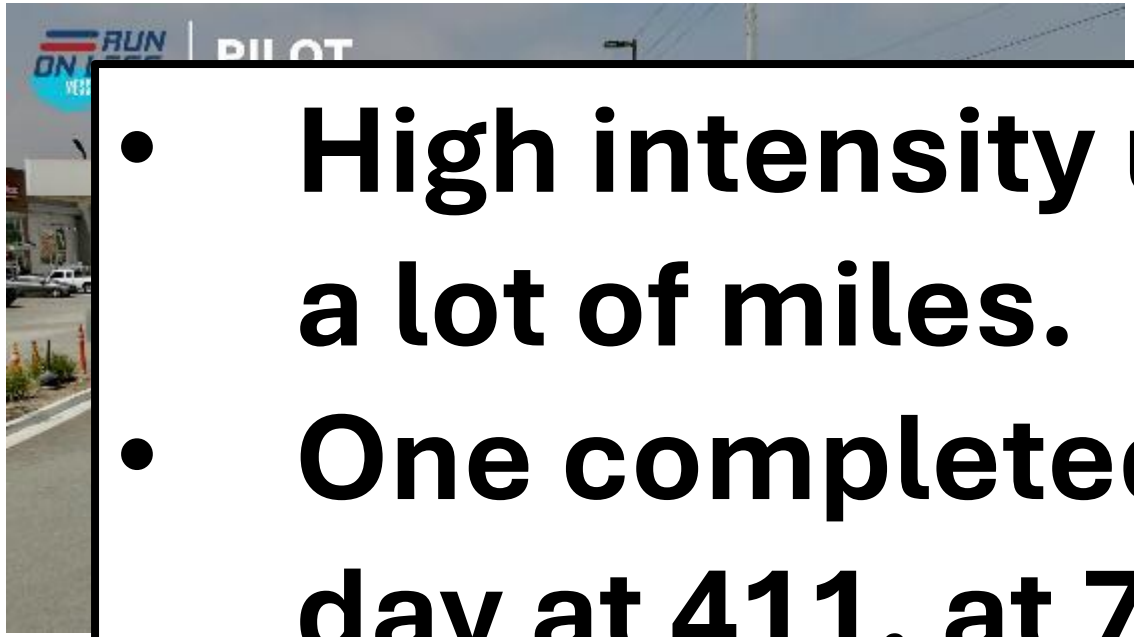
SAIA

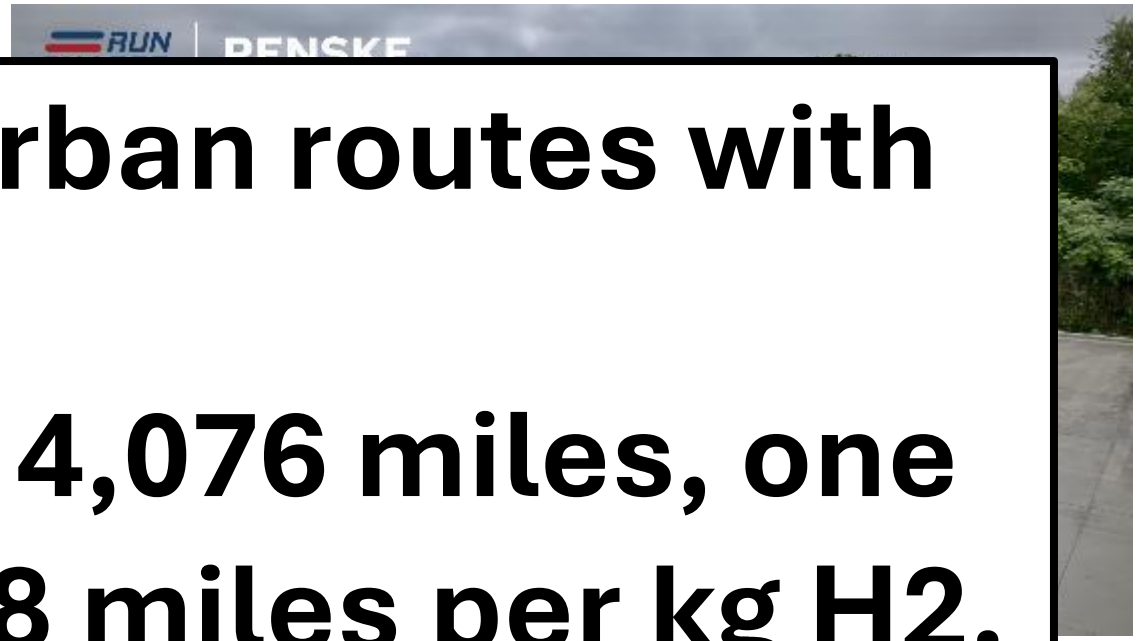

RUN ON LESS
MESSY MIDDLE
FUEL TYPE: BATTERY ELECTRIC
SAIA Tesla 2
Route
Short Rest
Long Rest
Charge Stop
Filter the Metrics
FROM
Day 8
TO
Day 11
UNITS
US
APPLY
« RETURN TO INDEX
LINK TO THIS
DISTANCE
1,676 MI
ESTIMATED DELIVERIES
35
ESTIMATED GVW
N/A
TEMPERATURE
79 F
WIND
13 MPH W
CONDITIONS
CLEAR
Battery Charge and Speed
Speed
Battery
mph
Percent
Time
Battery Charge and Distance
Distance
Battery
mi
Percent
Time

JoyRide Logistics



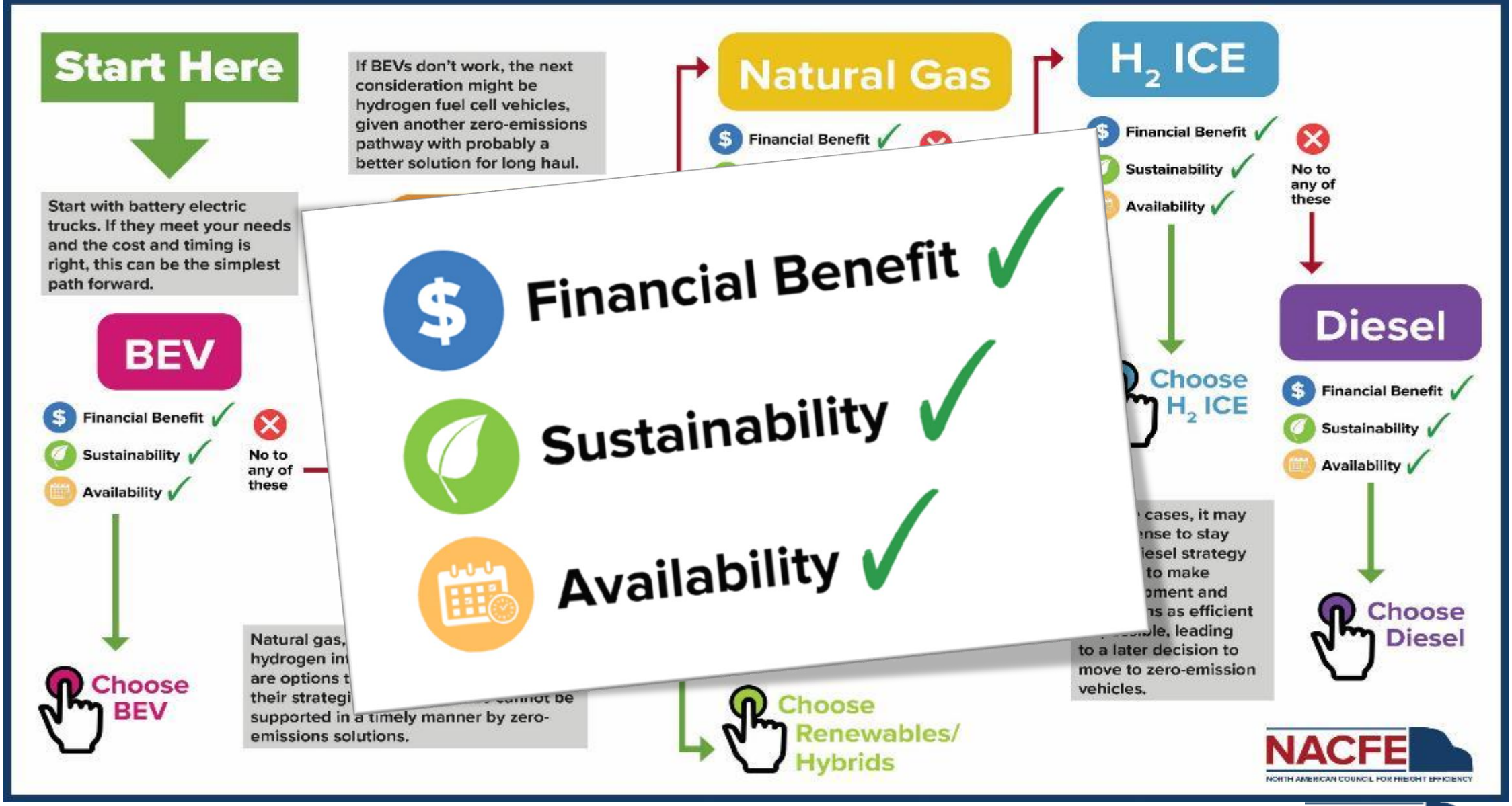
Hydrogen Fuel Cell Fleets





- High intensity urban routes with a lot of miles.
- One completed 4,076 miles, one day at 411, at 7.8 miles per kg H2.

Framework for Powertrain Decision Making



Questions

RUN ON LESS MESSY MIDDLE

Run on Less – Messy Middle: Will bring clarity to long-haul decarbonization by focusing on heavy-duty Class 8 sleepers and day cabs in long-haul return-to-base and over-the-road duty cycles.

Next SMARTE Webinar Session:

TCO Deep Dive: Understanding Lifetime Costs of Alternative Vehicles

Wed., 1/21/26, 1 p.m. CT

Presenters:

- Cabell Hodge, National Renewable Energy Laboratory
- Juliana VandenBorn, NCTCOG
- Alyssa Cunningham, NCTCOG

Register here in Microsoft Forms: https://forms.microsoft.com/r/xUwXMneVGW

Image provided by Getty

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