



Fleet Electrification: The Benefits, Processes, and Considerations of Electrifying Your Community

Connected Communities Webinar Series

Aug 13, 2024



Welcome

- Updates from the Connected Communities Team
 - Upcoming Webinars
 - Community Information Hub
- Fleet Electrification in the Valley
 - **Christine Richards**, Guidehouse
- Fleet Electrification 101: Considerations and Success Stories
 - **Caroline Cate**, Project Manager, Innovation & Research, TVA
- Tennessee Valley Authority Internal Mobility
 - **Nathan Stanfield**, Sr. Manager, Mobility & Investment Recovery, TVA
- Q&A
- Close Out

The Latest From Connected Communities

Connected Communities Initiative

We're helping communities embrace technology and data solutions to overcome their challenges and prepare to be part of the energy system of the future.

FOCUS AREAS		RESOURCES	
 Broadband and Digital Literacy	 Economic Empowerment	 Off-the-Shelf Guides and Tools	 Tailored Support and Success Coaching Through Partnerships
 Energy and Environmental Justice	 Enhanced Community Resiliency	 Pilot Project Funding	 Network to Share Information and Success Models



Upcoming Webinar

Weatherization:

Bringing greater comfort and energy savings to your community this winter

Tuesday, Sept. 10, 1:00 – 2:00 pm ET

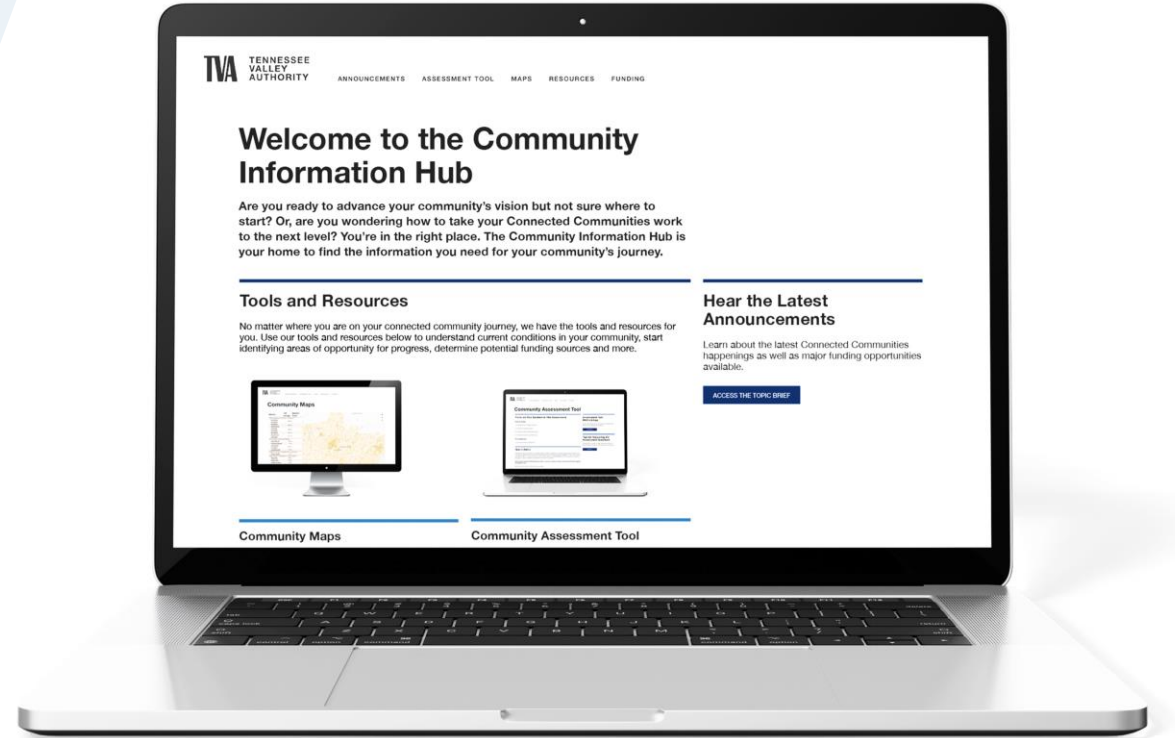


REGISTER NOW



Community Information Hub

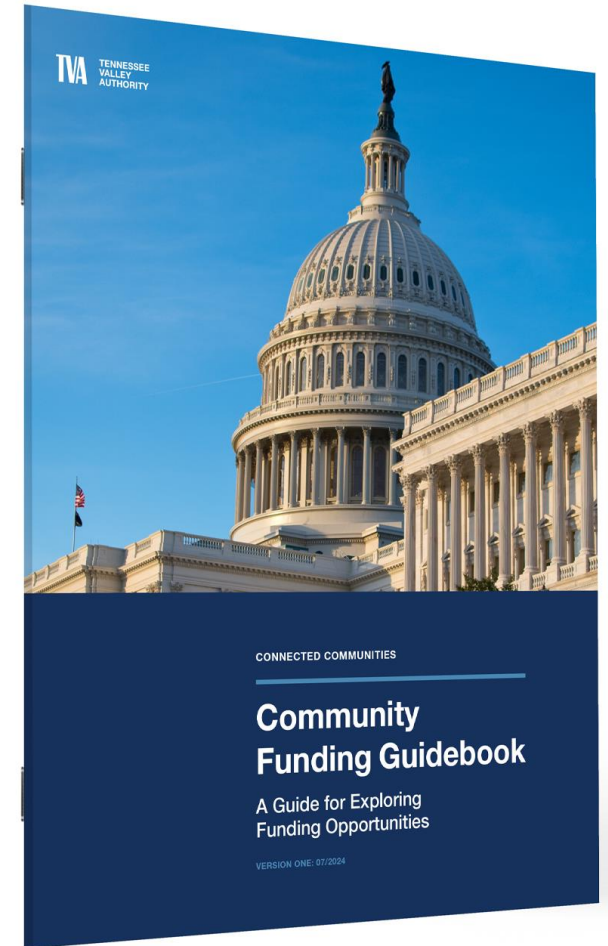
A new, interactive tool is available to help **assess your community needs, prioritize solutions and identify funding opportunities.**





Community Funding Guidebook

Interested in exploring funding opportunities but overwhelmed with where to start? The Community Funding Guidebook provides an overview of different types of funding, details of specific funding opportunities and best practices for pursuing funding.



Meet Today's Speakers



Caroline Cate

Project Manager,
Innovation & Research, TVA



Nathan Stanfield

Sr. Manager, Mobility
& Investment Recovery, TVA

Fleet Electrification in the Valley

Fleet Electrification Strategy & Roadmap

Summary

Prepared for Tennessee Valley Authority



The Mobility Transition has come to America

The Mobility Transition



How we move people and goods across the globe is being redefined. –[Guidehouse](#)

Defining Ground Fleets

The Vehicles

Classes 1 to 8



The Facilities



Public charging
or

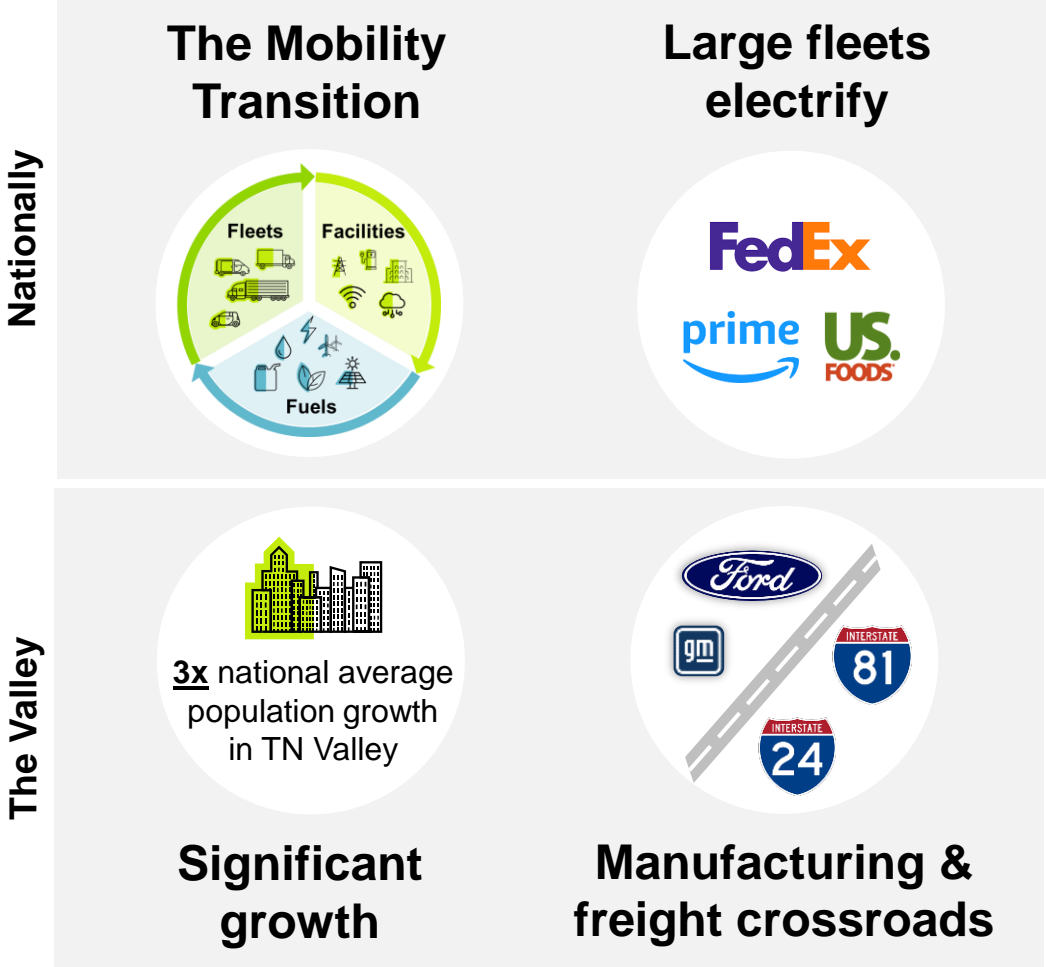
Private charging
(i.e., depot charging)

Example Fleet Use Cases

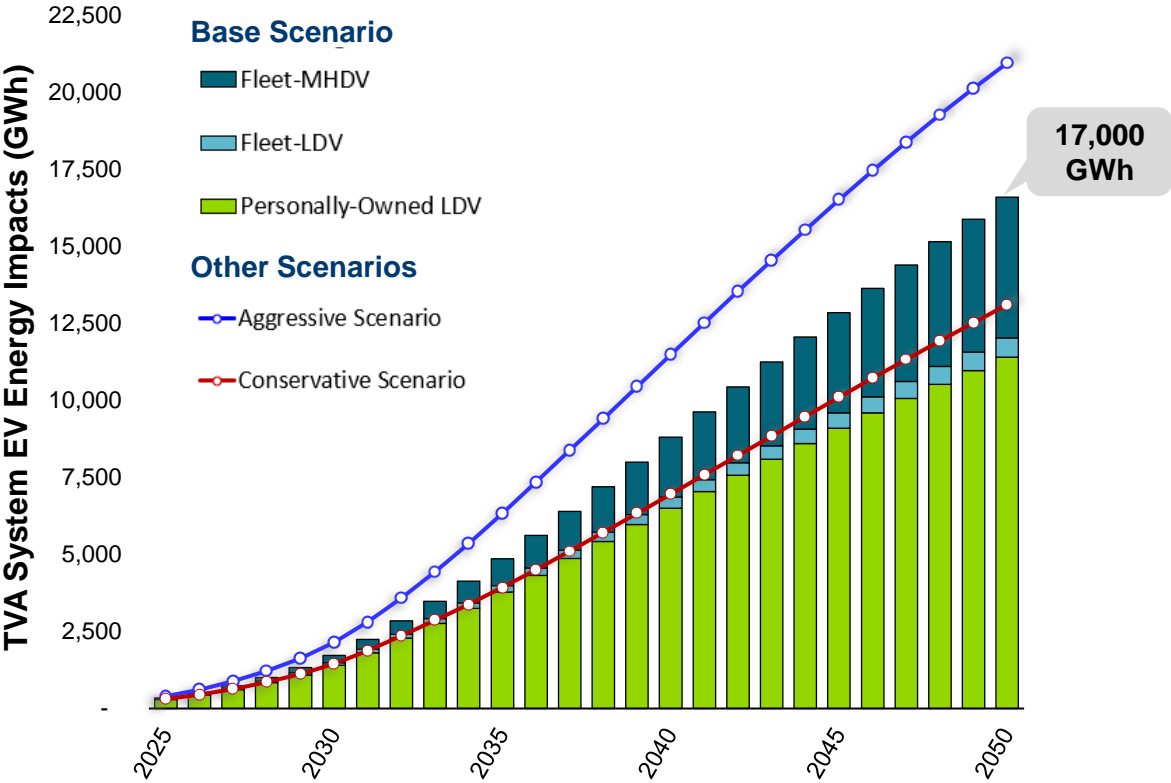


- Long-haul
- Short haul
- Food delivery
- Government
- Construction, oil & gas
- Refuse
- Transit & charter busing
- School busing
- En route charging

Electrifying fleets will bring Valley load growth



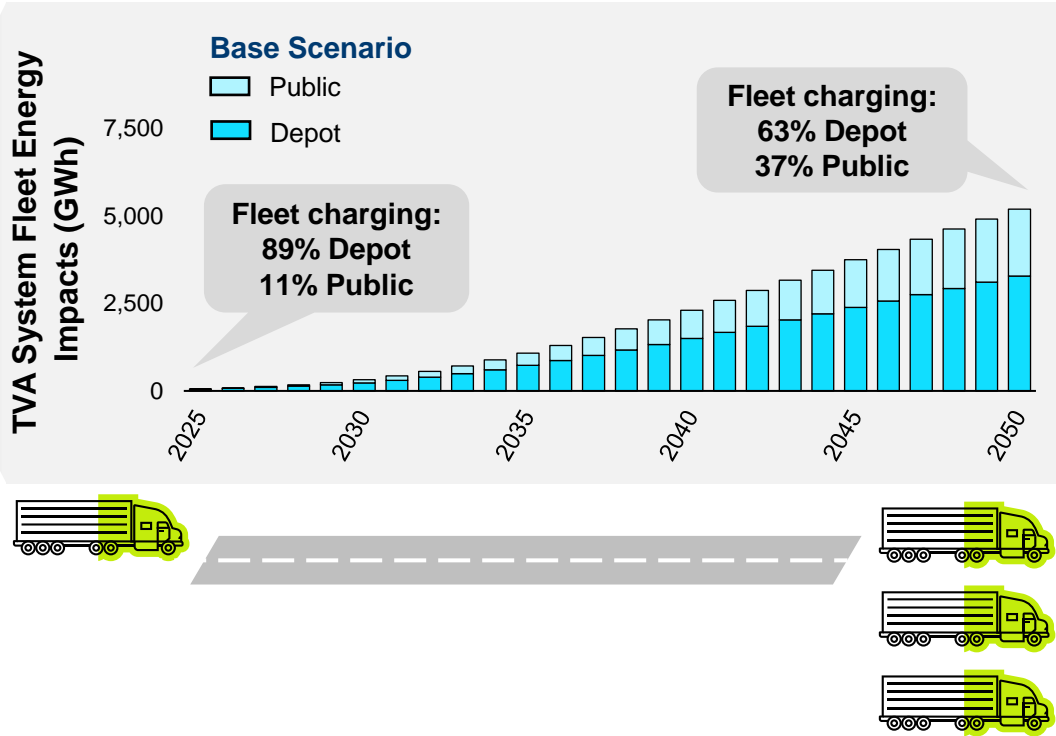
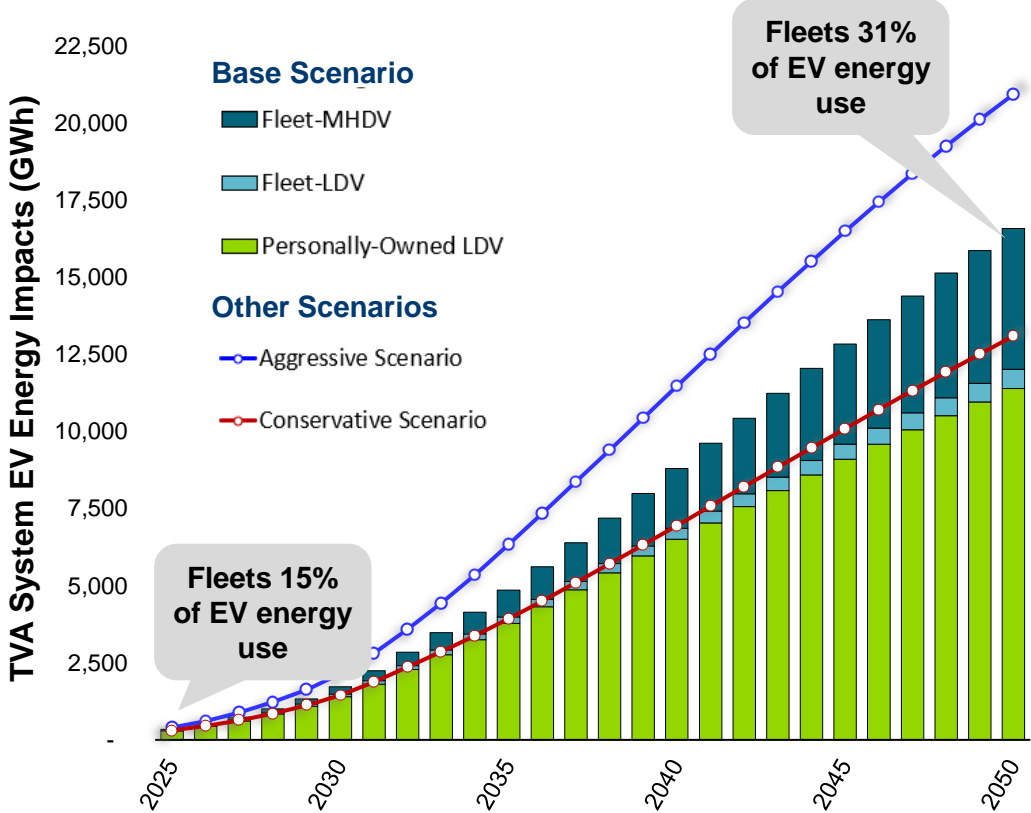
We may see more than 10% load increase by 2050 from EVs alone



Fleets' total EV impact increases significantly over time

Fleets account for twice the EV energy use between 2025 and 2050

Long-haul trucks drive public charging growth with the need for en route charging



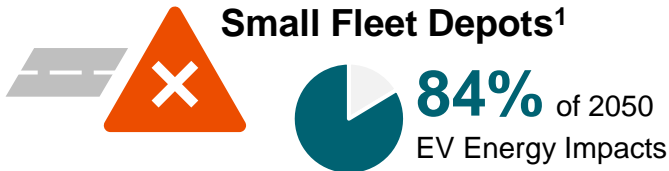
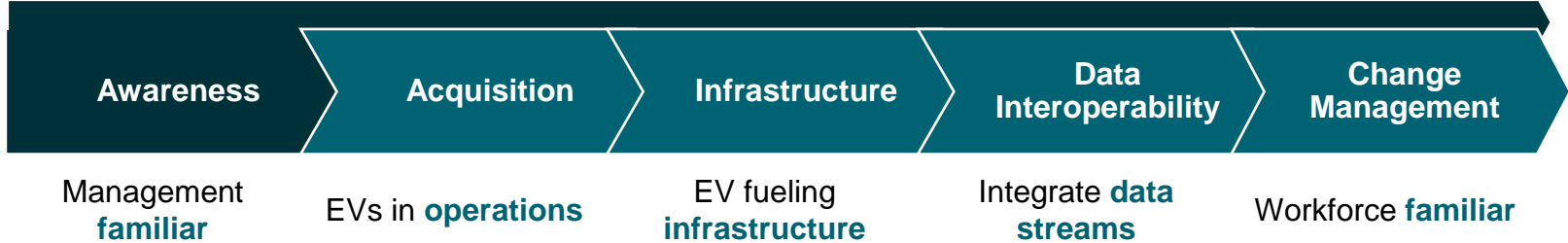
Fleet customers are electrifying and calling for support



We interviewed fleets to capture their needs and plans

They're facing roadblocks across the electrification journey

The Fleet Electrification Journey



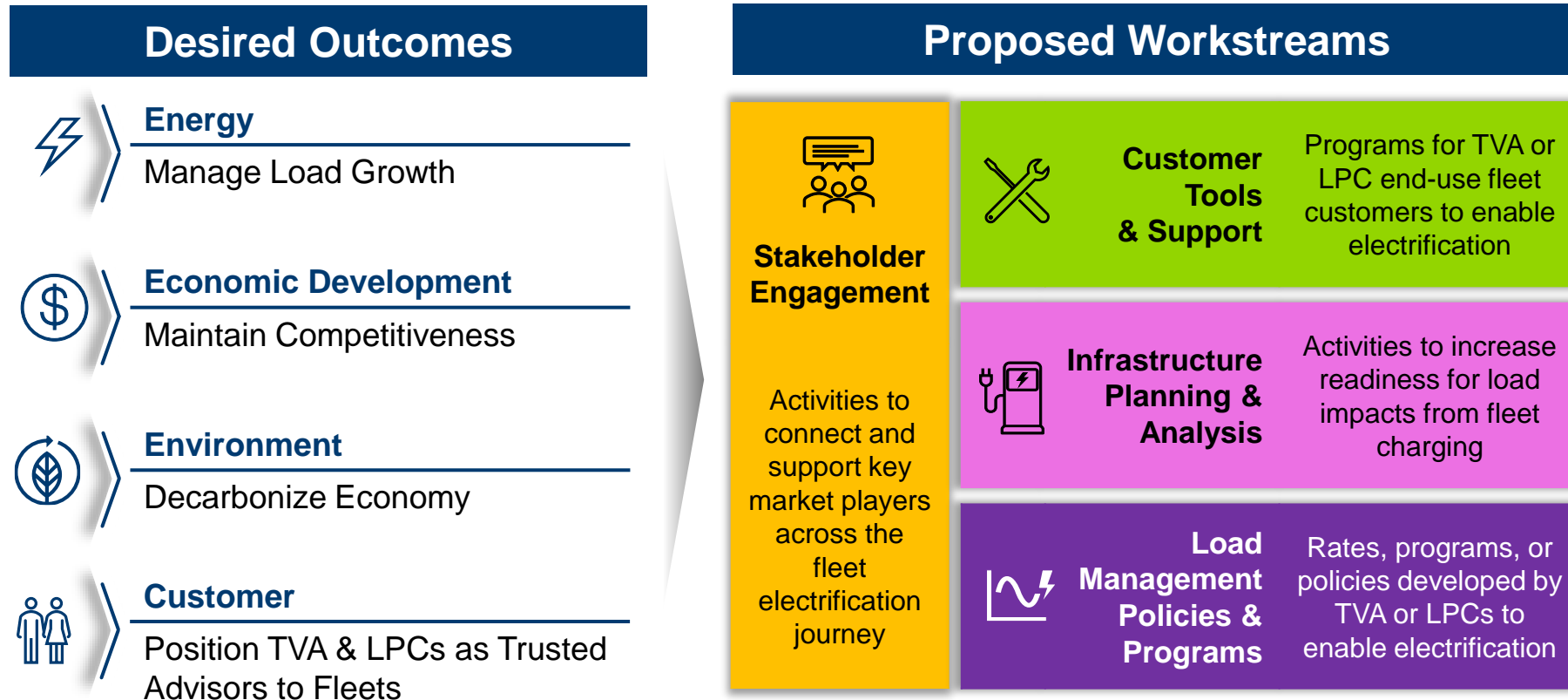
Voice of Customer Interviews:
Low awareness + Infrastructure challenges



¹Small fleet depots: Depots with <671 MWh energy consumption in 2050, representing 84% of total 2050 fleet energy.

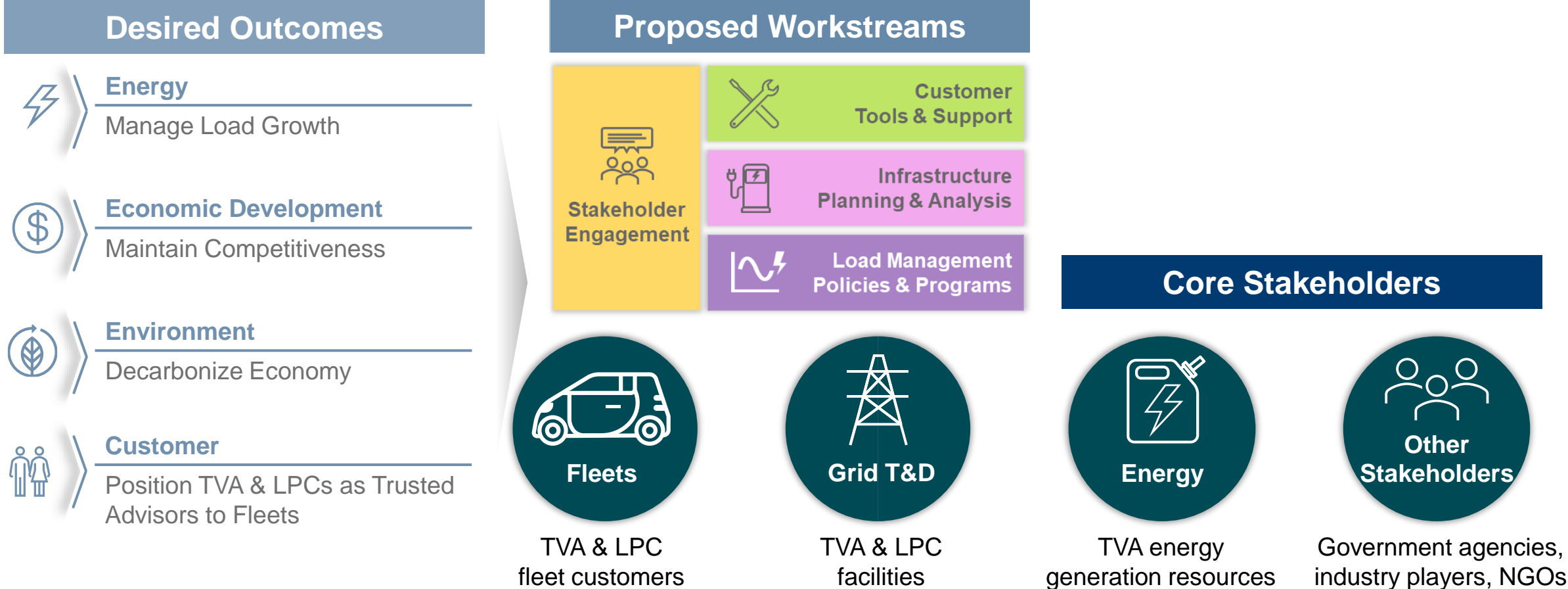
TVA's roles are guided by our desired outcomes

The Fleet Strategy defines TVA's roles and provides a roadmap to help customers navigate their fleet electrification journeys and support TVA's desired outcomes



Success depends on stakeholder collaboration

By partnering with core stakeholders through the workstreams, TVA can meet customer needs while managing load growth, maintaining competitiveness, and decarbonizing the economy



Fleet Electrification 101: Considerations and Success Stories

Caroline Cate

Associate Project Manager, EV Evolution

August 2024

OUR MISSION

Prepare for and enable adoption of EVs across the region to create benefits for communities and the grid

Electric Vehicle Evolution

PREPARE FOR AND ENABLE ADOPTION OF EVs TO BENEFIT OUR COMMUNITIES AND THE GRID

1. Preparing for EV Impacts

Ensure our energy system is prepared for millions of EVs on Valley roadways in the future

2. Understanding EVs as a Resource

Accelerating research, testing and demonstration of EV-grid technologies which improve the energy system

3. Enabling EV Adoption

Collaborating with stakeholders to identify and address barriers to large-scale adoption of all EV types

Benefits of Going Electric

Fuel Savings – low energy rates means lower fueling costs

Reduced Maintenance – EVs require less maintenance than standard gas vehicles

Quieter Rides – EVs reduce noise pollution due to lack of diesel engine

Cleaner Air – reduces air pollutants and CO₂ emissions

Economic Development – EV demand drives manufacturing and jobs in the region

Local Spending – EVs use locally produced electricity and support jobs in your community

Case Study: Electrifying School Transportation

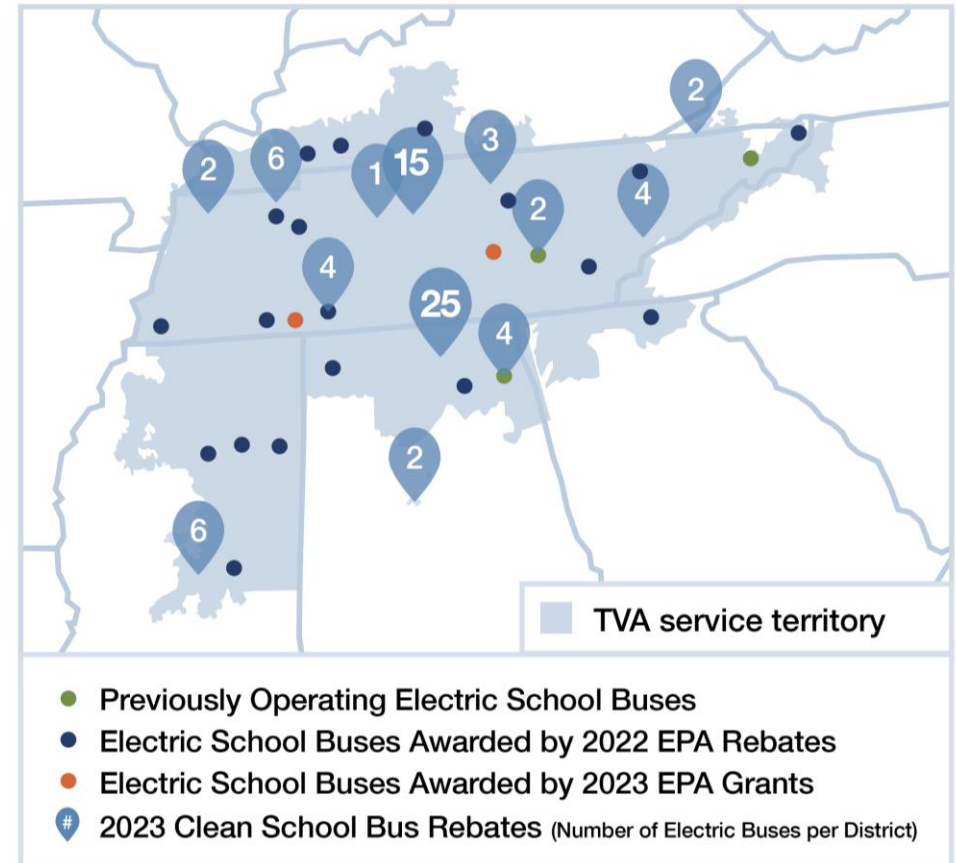
EPA Clean School Bus Program provides \$5 billion over five years to replace existing school buses with zero-emission equivalents.

TVA has provided application support and technical assistance for school districts through monthly webinars and office hours.

To date;

- \$84 million has been awarded to Valley school districts for 225 electric school buses
- 105 electric school buses are charging and operating in TVA's territory

REGIONAL ELECTRIC SCHOOL BUSES



How TVA is Helping Capture Benefits

TVA is reducing complexity by making sense of vehicle acquisition, charging infrastructure, and federal funding opportunities.



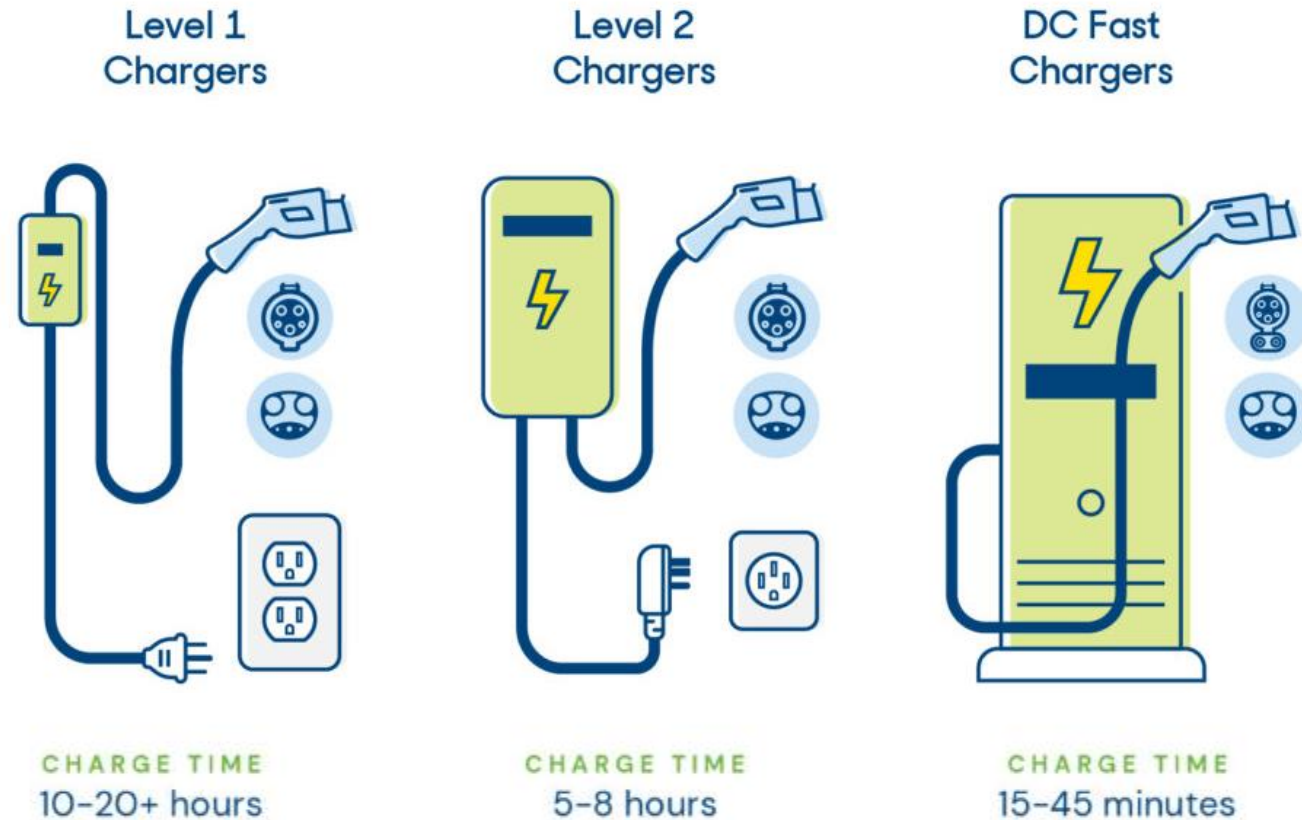
Vehicle Acquisition Considerations

- Vehicle selection will depend on the daily mileage and route of the vehicle you are replacing (or adding)
- Federal and State funding assistance is available
- Good news: there is a growing number of electric vehicle models!



Charging 101

There is no “one size fits all” when it comes to charging infrastructure.



Public Charging Infrastructure: Fast Charge Network Update

TVA is partnering with local power companies and regional state agencies to develop the foundational charging network with fast charging stations along interstates and major highways at least every 50 miles.



Charging Infrastructure Considerations

- Charger strategy will depend on a variety of considerations such as;
 - Route characteristics
 - Vehicle dwell location and duration
 - Number of vehicles
- Some businesses may be able to support charging infrastructure with current building capacity, but some buildings may need new service
- Public charging is improving (155 sites, 584 ports in TN)



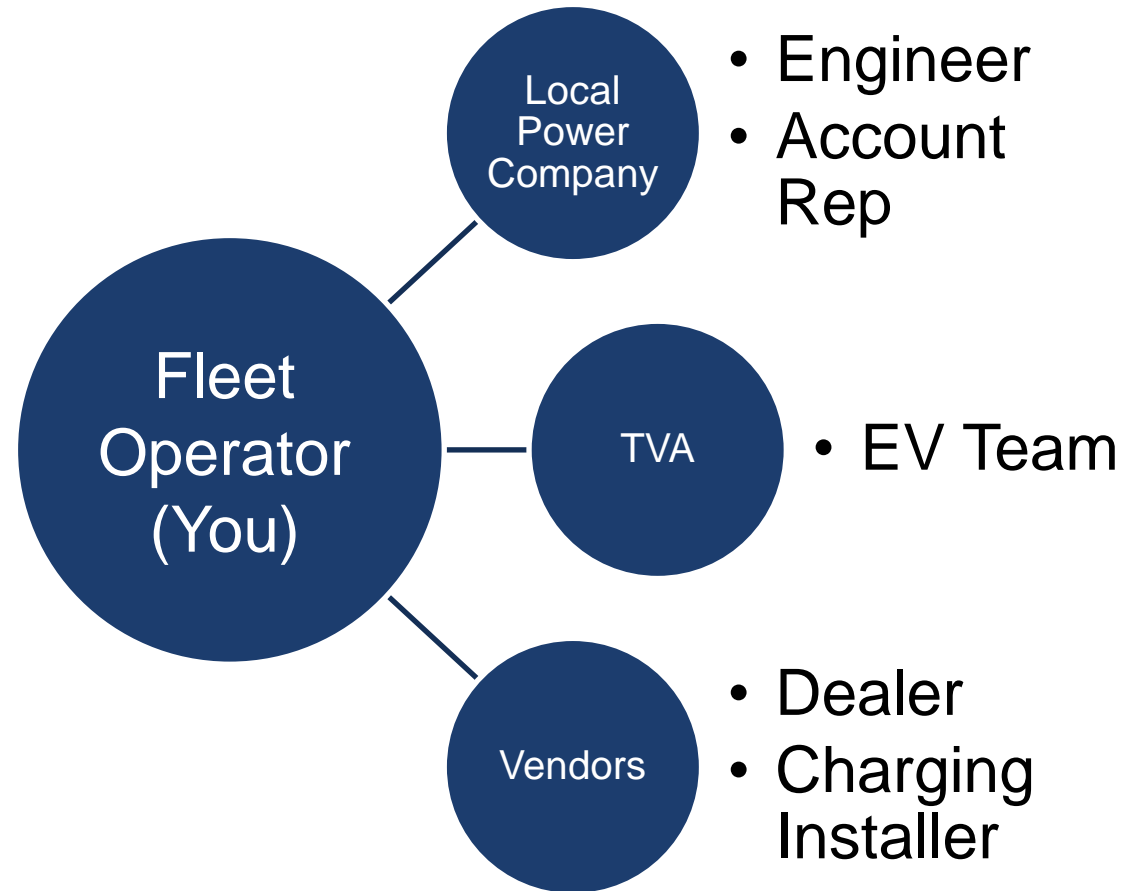
If you plan to install charging, engage with your local power company early and often!

Funding Opportunities May Be Available

- Commercial Clean Vehicle Tax Credit
- EPA Clean School Bus Program
- EPA Clean Heavy-Duty Vehicles Program
- DOT Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- FTA Low or No Emission Grant Program

Teamwork Makes the Dream Work!

- Fleet Manager
- Facilities Supervisor
- Finance / CFO
- Grant Writer (if applicable)
- Decision makers





How TVA's EV Team Can Support Communities

- Connect interested fleets and LPCs
- Subject matter expertise on vehicles, charging infrastructure and electric rates
- Funding guidance on relevant federal grant, rebate and tax credit opportunities
- Application assistance with preparing funding applications
- Industry connections to resources and peers

For more information or if you are looking for technical assistance, contact us.

Email: eevolution@tva.gov



Tennessee Valley Authority
Internal Mobility

Nathan Stanfield

Sr. Manager Mobility & Investment
Recovery

TVA Announces Fleet Electrification Goals

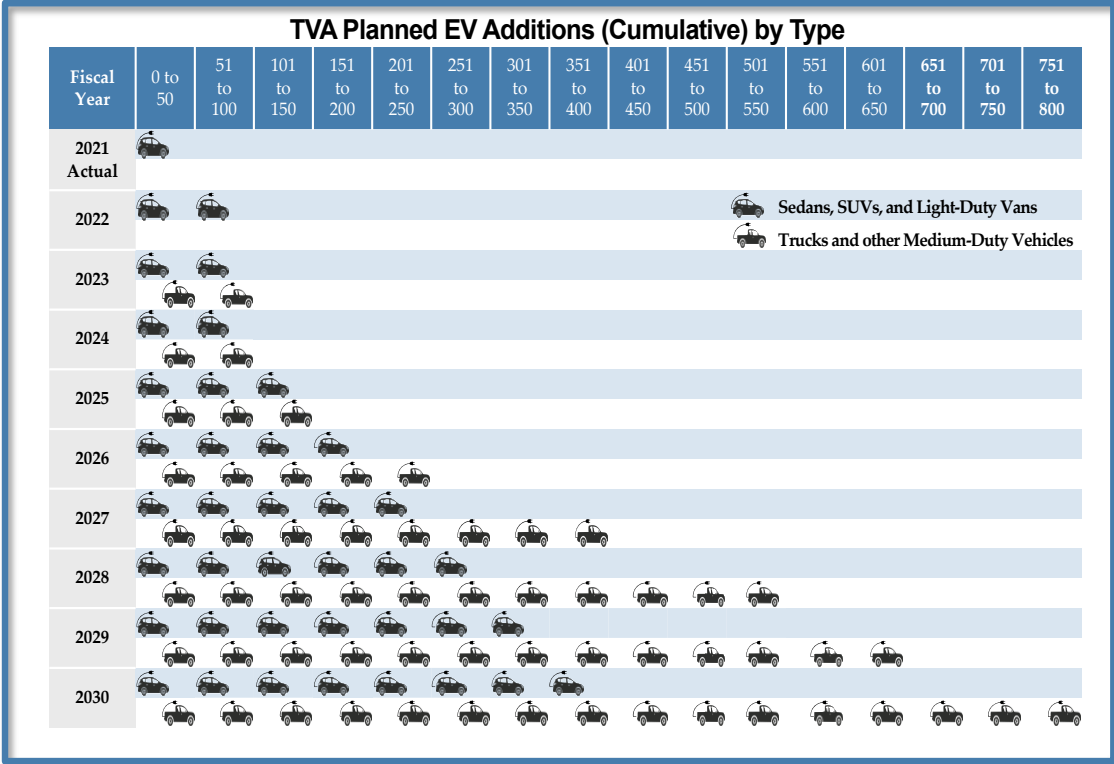
During the Board meeting on August 18, 2022 TVA’s CEO announced TVA’s commitment to electrify a portion of its vehicle fleet.

The Electrification goals included:

- TVA has aligned our electrification goals with EO 14057.
- In August 2021, TVA announced the agency will be transitioning 100% of light-duty fleet & 50% of the medium-duty fleet to electric vehicles by 2030.
- TVA aspires to achieve 100% electric light-duty acquisitions starting in 2027 and installing more than 800 new level 2 chargers by 2030.

Program Benefits

- Reduced CO₂ emissions, fuel costs, and vehicle maintenance costs.
- Optimized fleet composition and operations driven by smart technologies and data analytics (i.e., telematics)
- Greater integration of shared ride concepts, such as ValleyRide.

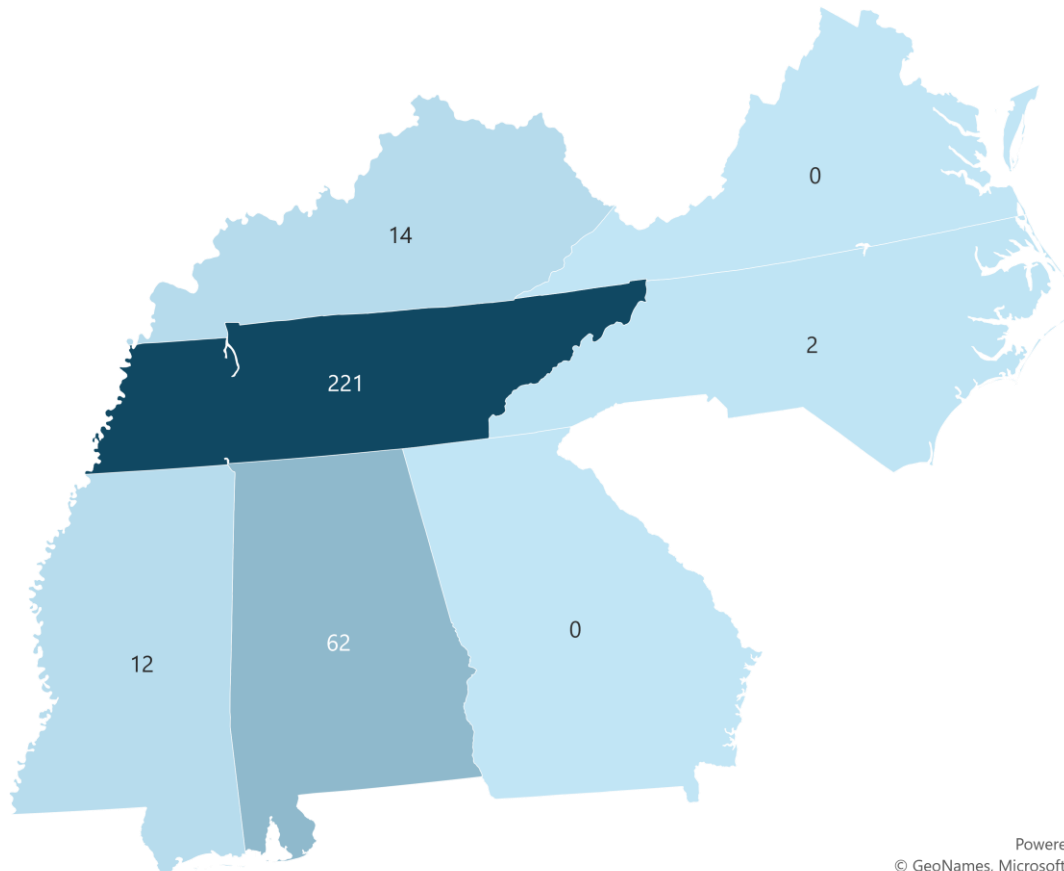


(1) LD = Sedans, SUVs, and vans <8,500 GVWR

(2) MD = All trucks and other vehicles >8,501 GVWR

TVA Internal EV & ESVE

TVA Internal Level 2 Chargers



Powered by Bing
© GeoNames, Microsoft, TomTom

- **Current State**
 - TVA has transitioned 132 vehicles to ZEVs or PHEVs in our fleet.
 - To date, we have installed 311 level 2 Chargers and 9 DC Fast Chargers to support the company's Electric Transition.
- **Future State**
 - Our goals are to focus on infrastructure for the next 3 years to support a 100% ZEV/PHEV acquisition in 2027.
 - We plan to install 100 smart chargers each year.
 - Future use of internal vehicle share Programs
 - Valley Ride and the expansion of Vehicle Sharing.

Lessons learned

- Internal charger infrastructure is just as important as local/public charging infrastructure.
- Plan your electrical needs early & speak with your local utility for guidance.
- Implementing solid infrastructure to support the shift to EVs.
- Designing Charger Sites
 - Current charge needs: lvl 2 vs. Fast Chargers
 - Future site needs
- Use of Bridged Technology. (PHEV)
- Be mindful with what Vehicles you are buying and what they need to be used for.
- Diverse Vehicle Fleet is optimal.
- Sedans and SUVs are where we should focus in the EV space, trucks are still limited in range and if they do have the range they're priced as a premium product.

Panel Discussion

Let's Stay Connected



Continue the Conversation

Contact Georgia Caruthers to learn more:

gmcaruthers@tva.gov

Or

ConnectedCommunities@tva.gov



Join Our Connected Communities Network

Visit the Connected Communities website and sign up to be part of the Connected Communities Network:

tva.com/connectedcommunities



Access Our Resources

Access the Community Information Hub and relevant guides:

- [Community Information Hub](#)
- [Community Funding Guidebook](#)

TVA

**TENNESSEE
VALLEY
AUTHORITY**