

Zero-Emission Bus (ZEB) Regional Strategic Plan

Program Advisory Committee

September 2023

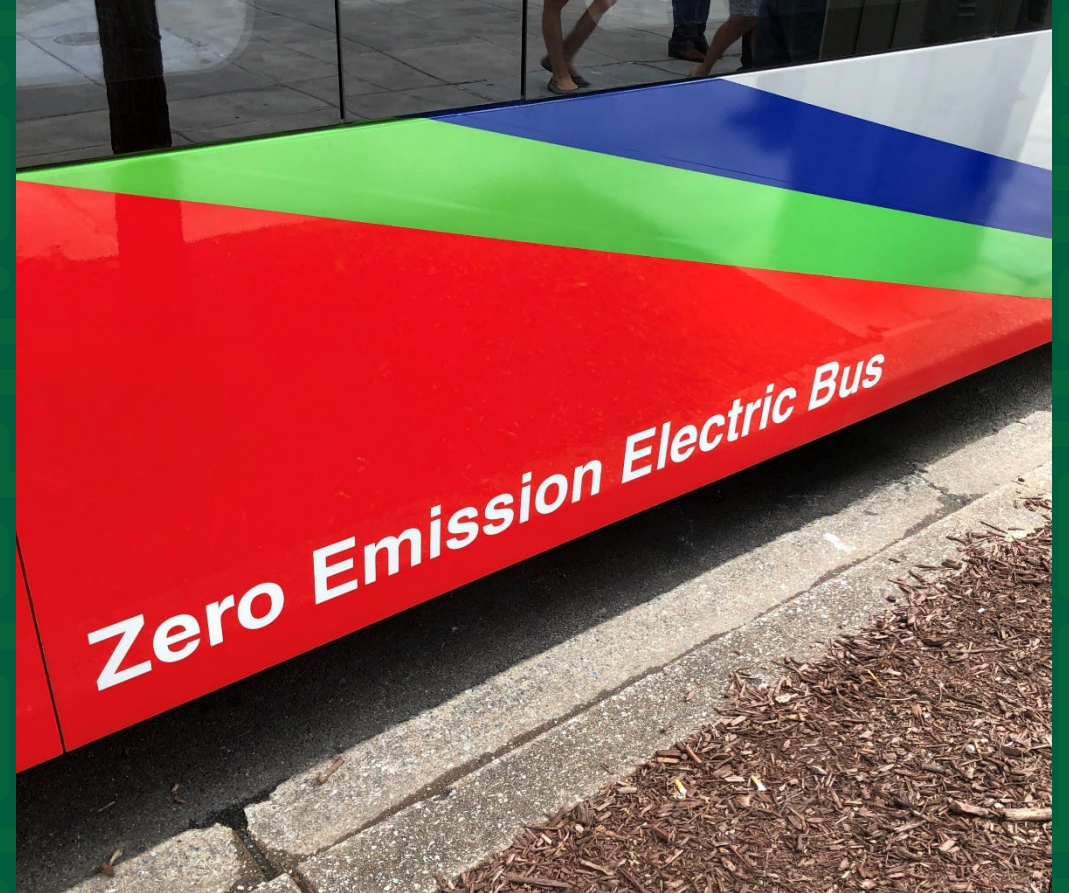
Agenda

Strategic Plan Process and Findings

Break for Questions

Discussion of Draft Regional Strategies

Strategic Plan Process and Findings



Purpose

- Develop a set of regional recommendations that can help advance zero-emission buses (ZEBs) throughout the region.
- Provide support to regional partners as they advance their own ZEB transition plans.
- Areas we've explored include:
 - Industry trends
 - Shared infrastructure opportunities
 - Supportive policies and standards
 - Collaboration and coordination needs

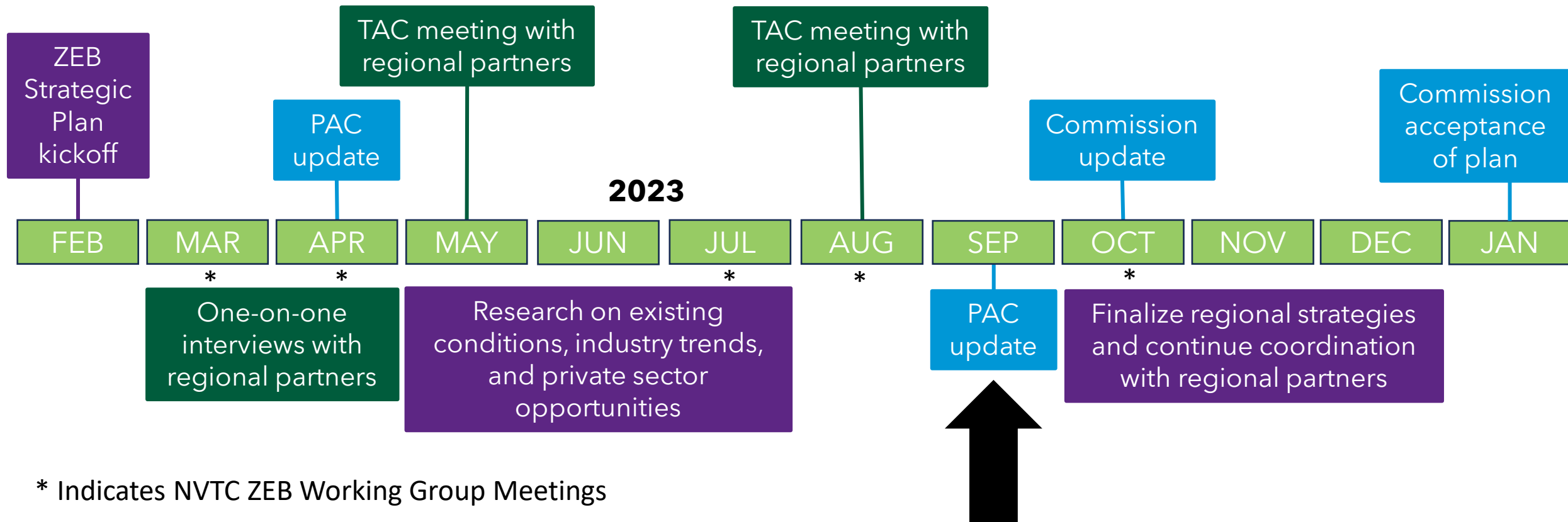
Current ZEB Planning Efforts

DRPT Modernizing Transit Fleets

NVTC Regional ZEB Strategic Plan

Agency-Specific ZEB Transition Plans

ZEB Strategic Plan Timeline

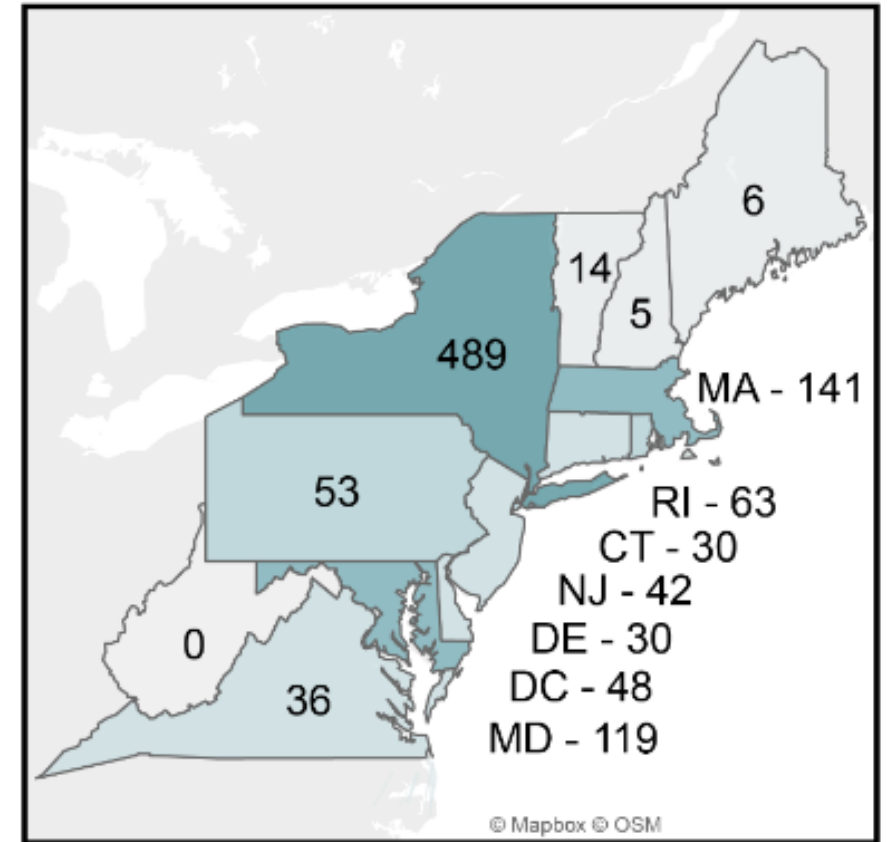


Nationwide ZEB Fleet Summary

Both battery electric buses (BEBs) and fuel cell electric buses (FCEBs) are experiencing strong growth, but BEBs remain the predominant type of ZEB across the country.

U.S. Full-Size Transit ZEBs Year-Over-Year Growth

Bus Type	2021	2022	Increase (2021 to 2022)	Growth %
BEB	3,168	5,269	2,101	66%
FCEB	129	211	82	64%
Total ZEBs	3,297	5,480	2,183	66%

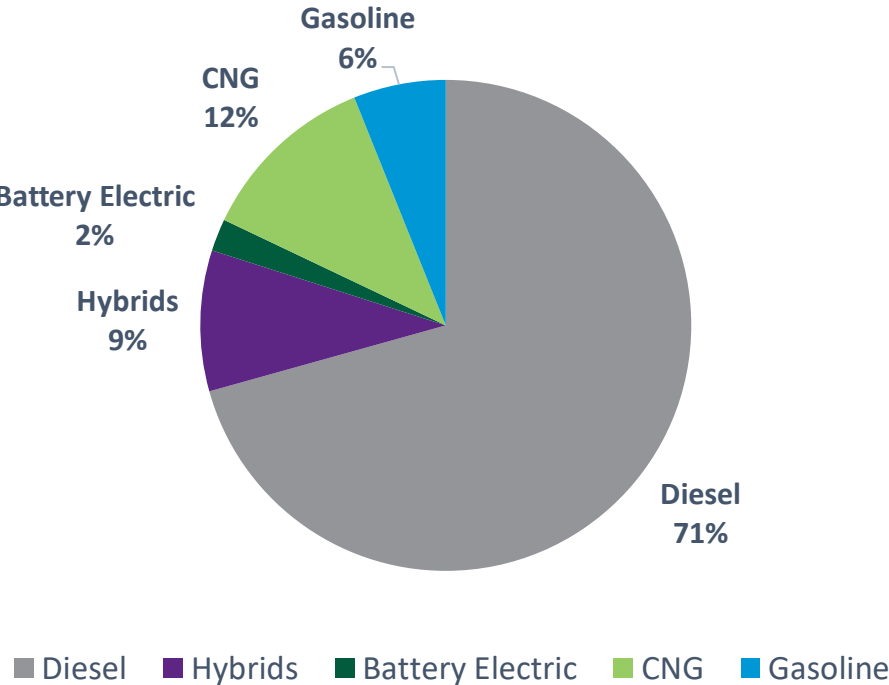


Source: Both graphics from CALSTART's *Zeroing in on ZEBs*.

https://calstart.org/wp-content/uploads/2023/02/Zeroing-in-on-ZEBs-February-2023_Final.pdf

NoVa ZEB Fleet Summary

NVTC Regional Partners' Fleet Composition Breakdown (June 2023)



	Current BEBs in Service	Planned/Purchased BEBs or FCEBs
Alexandria (DASH)	14	15 BEBs
Arlington (ART)	0	4 BEBs; 2-4 FCEBs
City of Fairfax (CUE)	0	0
Fairfax County Connector	0	12 BEBs
Loudoun County Transit	0	2 BEBs

Northern Virginia's Big Gains!

FY 2023 FTA Low- and No-Emission Grant Awards



City of Alexandria - \$23,984,700

- Buy 13 battery-electric buses and charging equipment
- Perform utility upgrades
- Conduct workforce training



Loudoun County - \$13,880,910

- Buy 37 compressed natural gas buses
- Build a fueling station
- Improve maintenance facility



WMATA - \$104,000,000

- Convert Cinder Bed Road Bus Garage in Lorton, VA into a fully battery-electric bus facility
- Develop a workforce development training program

What Else Is Happening Regionally?

- **Montgomery County, MD**
 - Brookville Smart Energy Bus Depot microgrid
 - Planned green hydrogen production and FCEBs at Rockville facility
- **Clean Hydrogen Hubs**
 - Connected DMV applied for DOE's Hydrogen Hub grant
- **WMATA-Led Regional ZEB Subcommittee**
 - Quarterly meeting that brings together staff from DC, MD and VA to discuss ZEB topics



What Have We Discussed?

Challenges

- Fleet Cost
- Range of BEBs
- Charging Locations
- Grid Capacity/ Hydrogen Availability
- Funding
- Standards / Interoperability
- Workforce Development

Potential Roles for NVTC

- Joint Funding Applications
- Shared Charging Infrastructure
- Industry Best Practices
- Advocacy & Education
- Training

Questions About the Strategic Plan Process?



Draft Regional Strategies



Draft Regional Strategies

- 1. Serve as Regional ZEB Forum**
- 2. Advocate for Consistent and Supportive ZEB Standards and Policies**
- 3. Coordinate Among Regional Partners on Funding and Procurement Opportunities**
- 4. Support Development of Shared Charging Infrastructure in Northern Virginia**
- 5. Evaluate Opportunities for Private Sector Partnerships**
- 6. Support ZEB-Related Workforce Training Programs**

1. Serve as Regional ZEB Forum

- a. Continue to lead or participate in regional and industry working groups that share lessons learned about ZEBs.**
- b. Share operational data and findings among regional partners.**
- c. Coordinate on best practices for working with utilities and track hydrogen technology.**

2. Advocate for Consistent and Supportive ZEB Standards and Policies

- a. Engage with local jurisdictional staff and elected officials to ensure alignment with regional efforts.**
- b. Support the zero-emission transition as part of the NVTC legislative agenda.**
- c. Encourage interoperability across technologies and manufacturers.**

3. Coordinate Among Regional Partners on Funding and Procurement Opportunities

- a. Identify additional funding and resources to implement the recommendations of the strategic plan.**
- b. Develop proposals for multi-agency grant applications for federal or state funding.**
- c. Identify cost saving opportunities through joint procurement.**

4. Support Development of Shared Charging Infrastructure in Northern Virginia

- a. Conduct a feasibility study for shared charging location(s).**
- b. Work with regional partners and local utilities to pilot a shared charging station.**

5. Evaluate Opportunities for Private Sector Partnerships

- a. Host listening sessions or industry days to learn more about ZEB infrastructure and technology vendors.**
- b. Develop a process through which vendors can propose solutions to demo with Northern Virginia transit agencies based on identified regional problems.**
- c. Explore options for an RFI to assess private sector interest in working with Northern Virginia agencies.**

6. Support ZEB-Related Workforce Training Programs

- a. Identify and share ZEB training resources with regional partners.**
- b. Engage with educational institutions, regional partners and DRPT about ZEB training opportunities.**

Questions?

