



APTA Zero Emission Bus Update

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TPB Regional Public
Transportation Subcommittee
July 27, 2021 Meeting



About APTA

- Oldest and largest public transportation association in North America
- Represents all modes of public transit
- More than 1,300 members from public and private sector
- **What we do:**
 - ✓ champion and advocate
 - ✓ provide connections and networking
 - ✓ offer knowledge and expertise
 - ✓ support career and professional development



Sustainability is core to transit's mission

Transit leads in alternative fuel transition

Around 72,000 transit buses in the US today

A decade ago, 80% were diesel

As of 2019, **50%** were alternatively fueled
(CNG, hybrid, biodiesel, electric)

What about ZEBs?

- 1,015 zero emission buses deployed as of 2020*
- APTA is collecting data on ALL ZEBs in use in North American transit agencies:
 - ✓ Tracking the OEM, battery or fuel cell, and size
 - ✓ Tracking chargers – number and manufacturer; hydrogen provider and source
- ✓ We have data so far from 52 agencies, with 845 buses and over 500 chargers
- ✓ We will release some data publicly and use the detailed results to help agencies find others with similar technology

What's Next?

- ❖ Scale up from pilot programs
OR
- ❖ Meet all zero emission fleet targets – by 2035/2040
OR
- ❖ Explore whether to make a commitment to going all zero

- ❖ All require knowledge sharing & education



ZEB Lesson to Date – Drives our APTA Work



Planning!! Battery buses are not “drop in” technology. Likely will need transition planning help, route modeling etc.



Collaboration among agency departments: Procurement, scheduling, maintenance



Effective utility engagement: Many agencies do not have experience working directly with their utility; need to plan for the long-term



Evaluating technology: fuel cells as well as battery; maybe a blended fleet

Other Key Considerations



Workforce: Training technicians & drivers, recruiting for new skillsets



Procurement: Need to understand expectations on range, battery life, infrastructure



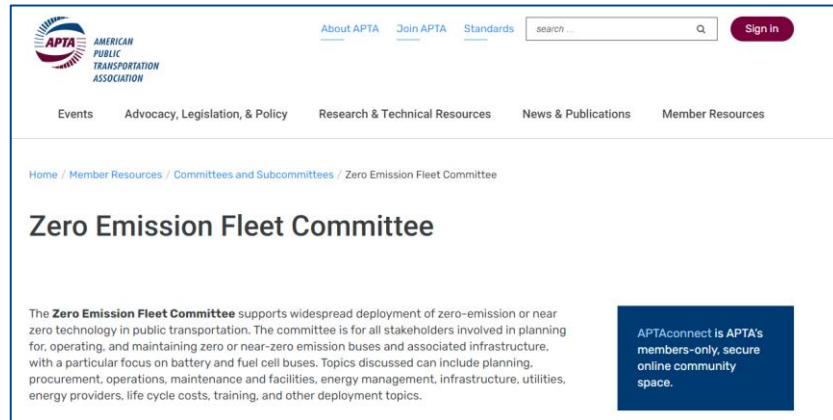
Resiliency: Need for backup power, redundancy



Data and KPIs: How do you assess how the fleet is performing, operational costs....

Zero Emission Fleet Committee

Mission Statement: *Our goal is to enhance APTA members' understanding of zero and near-zero emission bus and infrastructure technologies; create a forum for communication and partnerships among stakeholders; and disseminate information and resources.*



The screenshot shows the APTA website interface. At the top left is the APTA logo (American Public Transportation Association). To the right are navigation links for 'About APTA', 'Join APTA', and 'Standards', followed by a search bar and a 'Sign In' button. Below this is a horizontal menu with 'Events', 'Advocacy, Legislation, & Policy', 'Research & Technical Resources', 'News & Publications', and 'Member Resources'. The breadcrumb trail reads 'Home / Member Resources / Committees and Subcommittees / Zero Emission Fleet Committee'. The main heading is 'Zero Emission Fleet Committee'. The text below describes the committee's mission: 'The Zero Emission Fleet Committee supports widespread deployment of zero-emission or near zero technology in public transportation. The committee is for all stakeholders involved in planning for, operating, and maintaining zero or near-zero emission buses and associated infrastructure, with a particular focus on battery and fuel cell buses. Topics discussed can include planning, procurement, operations, maintenance and facilities, energy management, infrastructure, utilities, energy providers, life cycle costs, training, and other deployment topics.' A blue box on the right contains the text: 'APTConnect is APTA's members-only, secure online community space.'

Monthly Meetings with Speakers –
Featured speaker from our July meeting:

Montgomery County Brookville Microgrid Project

**Calvin Jones- Division Chief, Fleet
Management Services**

**Mike Yambrach- Capital Projects, Office
of Energy and Sustainability**



Procurement Guideline

- APTA Standard Bus Procurement Request for Proposal (RFP) creates common method of contracting
- **Updated with battery electric bus specification language as of spring 2021**
- Available from www.apta.com



Creating a Battery Bus Charger RFP Guideline

- Default technical specs for Depot, Overhead and Wireless
- Agency Operating Conditions
- Data Logging and Telematics
- Inspection, Acceptance, Commissioning
- Manuals and Training
- Reliability & Performance Requirements
- Warranty

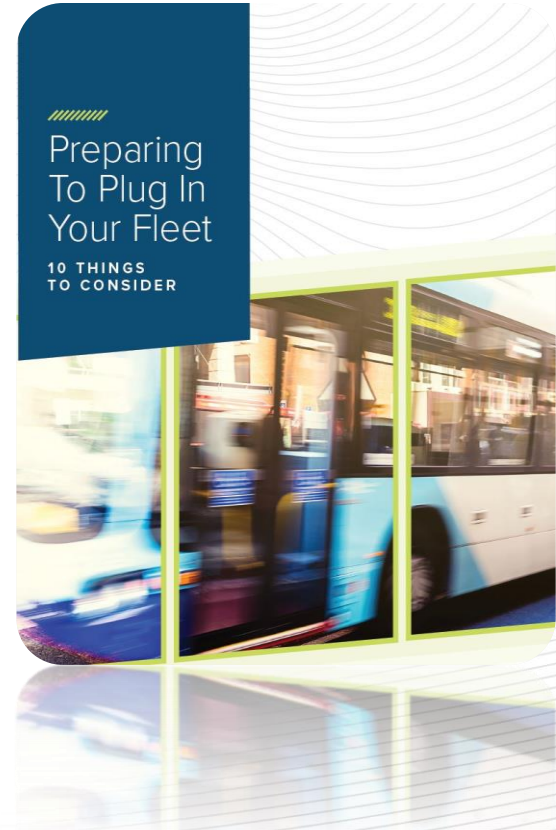


Goal to complete in fall 2021

Utility Industry Collaboration

Collaboration with Edison Electric Institute:

- Helped them create a primer for transit agencies on working with utilities
- Two-part webinar series in 2020 on utility engagement
- Tracker for innovative utility-agency collaborations
- Planning additional collaborations around long-term planning and resiliency



Virtual Study Mission to Europe

From June 28-July 1, virtual visits made to:

Groningen/Drenthe in the Netherlands:

186 of their 360-bus fleet is BEB or FCB

Paris: 200 electric buses in 2 all-electric depots as of today, and a tender for 800 more for delivery by 2022

Cologne: 8 electric buses since 2016, expanding fleet to 114 total in 2022

London: over 450 electric buses, aiming for all 9,000-bus fleet to be zero by 2037

Some key take-aways:

1. Strategy has been to match the technology to the route (including some non-ZEB)
2. Need to start very early on planning facilities modifications which can be substantial
3. Cities gave us this message: don't wait for the "perfect" technology solution

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Lisa Jerram

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Zero Emission Bus Planning and Deployment: Session 2

Includes Credits Recorded On: 03/31/2021

Overview Session Slides



This APTAU CEU Academy two-part series provides training on zero emission bus (ZEB) deployments. This second session focuses on ZEB and infrastructure procurement and deployment, including topics such as developing technical specifications, infrastructure installation, and performance monitoring. Registration fees: Member - \$49 / Non-members \$99

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Zero Emission Bus Planning and Deployment: Session 1

Includes Credits Recorded On: 03/24/2021

Overview Session Slides

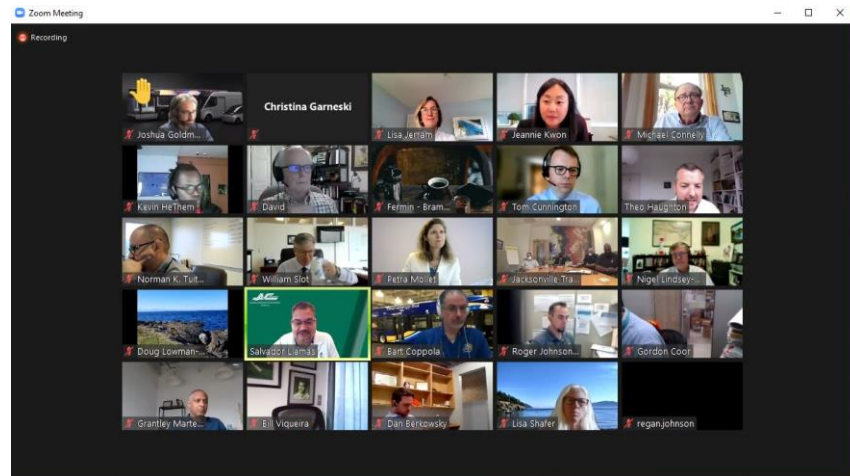


This APTAU CEU Academy two-part series provides training on zero emission bus (ZEB) deployments. This first session focuses on the planning stage with an overview of ZEB technology, review of the critical differences between planning for ZEBs and conventionally fueled buses, and how to determine the right bus and infrastructure technology for your specific needs. Registration fees: Members \$49 / Non-members \$99

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APTA's TRANSform Conference & EXPO
November 7-10, 2021 | Orlando, FL
REGISTER NOW AT [APTAEXPO.COM](https://www.aptaexpo.com)



A white bus is shown from the side, parked on a paved road. The background features a sunset with a bright sun low on the horizon, casting a golden glow over a field and a line of trees. The sky is filled with soft, dark clouds. The overall scene is peaceful and scenic.

Thank you!

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