



A Proterra model battery electric powered bus  
(photo credit: Proterra, May 2021).

## A-1 Electric Bus & Fleet Transition Planning

Initiative: Assess the feasibility of transitioning Pace's fleet toward battery electric and additional CNG technologies, as well as develop a transition plan for operations and facilities. Study other emerging technologies that can improve Pace's environmental impact.

**IMPLEMENT  
NOW**

implement  
later

further  
investigate

### Supports Goals:

Responsiveness, Safety, Adaptability, Collaboration, Environmental Stewardship, Fiscal Solvency, and Integrity

### ACTION ITEM 1 Investigate and Plan for Battery Electric Bus (BEB)

Pace is committed to the goals of environmental stewardship and economic sustainability, and recognizes how interest to electrify vehicles across private industry and US federal, state, and local governments has been intensifying throughout 2020-2021. Looking ahead, the agency will holistically evaluate a transition path to converting its fleet to battery electric buses (BEB).

As a first step, Action Item 2 of the A-2 Capital Improvement Projects initiative describes Pace's forthcoming Facilities Plan. This effort will include an investigation of the prerequisites that BEB technology requires to successfully operate. Once established, Pace will further plan what next steps and actions to take in pursuit of this vehicle propulsion system.

A Union of Concerned Scientists 2017 study<sup>3</sup> indicates that BEB's have 70 percent lower global warming emissions than CNG or diesel hybrid buses even when considering the lifecycle emissions required to generate the necessary electricity. Similarly, a 2018 US PIRG Education Fund Study<sup>4</sup> indicates that implementing BEB's lower operational costs yields fuel and maintenance savings over a vehicle's life cycle.

Pace praises the efforts of many other transit agencies across the nation and world who are investing heavily in transitioning their fleets to BEB and other green, renewable, and environmentally-cognizant sources of vehicle propulsion. We will coordinate closely with the CTA who is already pioneering this technology in the Chicago region, as well as IDOT, Illinois Tollway and other regional partners to identify opportunities to share resources, ideas and expertise for electrifying public fleets.



<sup>3</sup> Chandler, Sara et al. *Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California*. Union of Concerned Scientists. 2017

<sup>4</sup> Casale, Matt & Mahoney, Brendan. *Paying for Electric Buses - Financing Tools for Cities and Agencies to Ditch Diesel*. U.S. PIRG Education Fund. 2018.

## Alternative Fuels | Battery Electric Bus and Compressed Natural Gas



**Top photo** - A CTA battery electric bus (BEB) vehicle. The CTA is pioneering the use of this technology in the Chicago region with vehicles now in revenue service. As part of the pilot project, quick-charging units have been installed at key points along the busy #66 Chicago Avenue route which operates using BEB vehicles. For this work, the CTA was awarded the 2020 Innovative Solutions Award from METRO Magazine.

**Bottom-left photo** - TransLink in Vancouver has had BEB's in service since 2019 as part of a Canadian national pilot project. Fast-charge infrastructure is seen above the vehicle.

**Bottom-right photo** - A Pace compressed natural gas (CNG) powered vehicle along South Halsted Street in Harvey. Pace has been operating CNG out of its South Division garage since 2018 and is converting its Northwest Division to exclusively operate using CNG in the coming years.

## ACTION ITEM 2 Compressed Natural Gas (CNG) Expansion

Pace has made major investments in CNG vehicles recently. In 2018, Pace completed a compressed natural gas (CNG) bus garage in Markham that houses 98 CNG buses. Benefits including lower fuel cost, lower maintenance cost, and reduced emissions. Pace has also acquired land in Wheeling to replace its current Northwest Division, which will feature exclusive CNG technology.

Moving forward, CNG will continue to play an integral role in Pace's commitment to the Environmental Stewardship goal.

## ACTION ITEM 3 Investigate Emerging Technologies

Pace recognizes that other vehicle propulsion technologies may have potential to one day replace or augment Pace's transit fleet beyond the current diesel and CNG technologies, as well as forthcoming BEB technology.

Transit agencies across the nation have been investigating, piloting and operating alternatives such as hydrogen fueled vehicles, referred to as fuel cell buses, and hybrid variants of diesel electric and hydrogen electric. There may also be long-term cost efficiencies in retooling CNG facilities with fuel cell technologies that are worth further investigation.

Moreover, completely new and innovative technologies may be invented and developed in the coming years which may be of interest for Pace to explore.

Overall, Pace will carefully weigh the implications of operating multiple vehicle technologies under any scenario, and ensure its ability to maintain the highest standards in safety, training, and maintenance prior to making new commitments.

***The upcoming Pace Facilities Plan will provide the first step in investigating the prerequisites that battery electric buses need to successfully operate.***