

To: Pace Board of Directors
CC: Staff

Date: August 20, 2021

Subject: Comments and Stakeholder Engagement on Driving Innovation

Thank you for your hard work and service during these difficult times. We recognize that the COVID-19 pandemic has presented extraordinary challenges for Pace and that you have been working tirelessly to ensure that your service remained minimally impacted for our essential workers and communities.

As representatives of Illinois' environmental and transportation advocacy communities, we are committed to ensuring that public transportation remains available and accessible to our communities and that any direct or indirect spending is focused in the most cost effective and environmentally responsible ways. We were pleased to hear Board Chair Kwasneski affirm that the Agency would not be purchasing additional diesel buses in the 2021 or 2022 fiscal years, but we are hopeful that you will firmly commit to transitioning away from both diesel- and compressed natural gas-fueled vehicles entirely moving forward.

We have reviewed the Driving Innovation plan developed by Pace, and acknowledge that you have affirmed this is a living document and that you will be making changes moving forward. To that end, we ask that you firmly commit to a fleet transition from diesel and compressed natural gas (CNG) buses to battery-powered electric buses (BEB) within a set timeframe.

As you are aware, pollution from burning any fossil fuel is deadly. We appreciate the fact that you cited the work of the Union of Concerned Scientists and Public Interest Research Group (PIRG) on page 53 of Driving Innovation in evaluating the emissions savings of BEBs. Both organizations have also highlighted the deadly effects of ongoing investments in diesel¹. While these studies are several years old at this point, they highlight the damaging effects that ongoing fossil fuel investment has upon our environment and the health of our communities.

¹ Delivering Opportunity: How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California (2017)

<https://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf> and
Paying for Electric Buses - Financing Tools for Cities and Agencies to Ditch Diesel (2018)
<https://uspirtg.org/reports/usp/paying-electric-buses>

Moving forward, CNG is not the most cost effective nor environmentally responsible technology to invest in at this time. We strongly disagree with the Driving Innovation plan to expand this investment. The current plan to purchase 100 additional CNG buses and another CNG garage totalling more than \$60 million is not a wise investment in the technology of the future or our environment.

The climate impacts of ongoing investments in fossil fuel technology are unequivocally irresponsible. Studies have shown that even the incremental greenhouse gas emission improvements realized by a natural gas bus are offset by leakage from extraction and transmission of gas. Unburnt fuel at refueling stations and natural gas vehicle tailpipes, coupled with the delivery issues noted, and new sources of methane leakage, combine to make CNG vehicles worse for the climate than diesel vehicles². In the past several years, a growing number of studies have revised upward the scale of unaccounted-for leaks of methane from the gas delivery system and demonstrate that increased methane gas GHG emissions is actually between 60% to 500% above official estimates³. Additionally, the most recent UN report warns that the world must immediately slash methane emissions to stabilize already irreversible global warming⁴. Extending reliance on gas and gas infrastructure ignores the urgent message from scientists that **we must act now**.

We note that Board Chair Kwasneski has stated, and Driving Innovation itself indicates, an interest in exploring hydrogen and other technology moving forward. A peer reviewed study released in August 2021 shows that the lifecycle GHG emissions caused from carbon capture “blue hydrogen” development is actually 20% greater than burning natural gas or fuel and 60% greater than burning diesel⁵. Additionally, and most importantly, fuel cell vehicles require significantly more fueling infrastructure than battery-electric buses at a greater cost difference based on the sheer number of stakeholders involved in the hydrogen fuel supply chain⁶. We note that hydrogen fuel cell stations cost between \$1-2 million, depending upon geography, and that capacity ranges from 200-600 kg a day, or enough to fill between 6 and 20 buses⁷. In comparison, electric charging stations in a city

² Methane Emissions from Natural Gas Vehicles in China (September 2020)

<https://www.nature.com/articles/s41467-020-18141-0>

³ Estimate of Methane Leakage from Pipeline Mains in Natural Gas Distribution Systems (June 2020) <https://pubs.acs.org/doi/10.1021/acs.est.0c00437>

⁴ AR6 Climate Change 2021, IPCC Sixth Assessment Report (2021)
<https://www.ipcc.ch/report/ar6/wg1/>

⁵ How Green is Blue Hydrogen? By Robert Howarth and Mark Jacobson (August 2021)
<https://onlinelibrary.wiley.com/doi/full/10.1002/ese3.956>

⁶ Fueling the Future of Mobility, Hydrogen and fuel cell solutions for transportation (2020)
<https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/finance/deloitte-cn-fueling-the-future-of-mobility-en-200101.pdf>

⁷ Xcelsior, hydrogen fuel cell-electric bus sales brochure
<https://www.newflyer.com/site-content/uploads/2017/10/Xcelsior-Hydrogen-Fuel-Cell-Electric-Bus-1.pdf>

such as Philadelphia cost roughly \$1 million for a fleet of 25 battery electric buses⁸ and we expect additional offsets from utilities and governmental funding.

Pace's intention to *explore* battery powered electric buses (BEB) is laudable, but insufficient to meet this moment. With the anticipated expanded access to funding from both the federal and state governments for zero emission fleet transitions, we believe that any strategic plan moving forward must be exclusively focused on the adoption of BEB technology within a set timeframe. Capital costs have dramatically declined⁹ in recent years, and the technology is becoming widely available¹⁰. Agencies of similar size, and with similar range, have planned for and are implementing this technology.

The current market of electric buses is sufficient to support Pace's goals. There are over 50 electric bus models available for purchase now.¹¹ Companies like Daimler, Proterra, New Flyer, and BYD are ready to produce and sell to municipalities and agencies across the country. Today, studies show that electric bus vehicle classes 4-8 already have lower total cost of ownership compared with their internal combustion engine counterparts, even when factoring in higher upfront costs for electric buses.¹² Based on comments at the July 2021 board meeting, we are aware that many of the Directors' positions are informed by private conversations and assumptions on how the electric grid works, but these private statements and assumptions are at odds with developments occurring elsewhere in Illinois and globally¹³. CTA, which shares routes and facilities with Pace within the region, has committed to electrify fully by 2040 and is making plans and investments to accomplish that goal. Conversations and information sharing between the agencies should expand on this topic. In weighing the plan for electrification against the considerable information available to the contrary about continuing to invest in CNG technology, Pace should be mindful of additional industry incentives to recoup sunk costs in gas investments, and

⁸ How to Enable Electric Bus Adoption in Cities Worldwide, World Resources Institute (2019) <https://wriorg.s3.amazonaws.com/s3fs-public/how-to-enable-electric-bus-adoption-cities-worldwide.pdf>

⁹ Plummeting Costs & Dramatic Improvements in Batteries Can Accelerate Our Clean Transportation Future (2021) <https://gspp.berkeley.edu/faculty-and-impact/centers/cepp/projects/2035-transportation-decarbonization-modeling-study>

¹⁰ Medium- & Heavy Duty Vehicles: Market structure, Environmental Impact, and EV Readiness (2021) <http://blogs.edf.org/climate411/files/2021/08/EDFMHDVEVFeasibilityReport22jul21.pdf>

¹¹ https://www.edf.org/sites/default/files/documents/Race%20to%20Zero-ICCT_EDF_PQ-FINAL.pdf
¹² <https://www.2035report.com/transportation/#:~:text=Combined%20with%20a%2090%20percent,transit%20centers%2C%20or%20freight%20hubs>

¹³ Quad-Cities MetroLINK <https://www.gogreenmetro.com/375/Electric-Bus> and "Toronto to procure 300 electric buses" <https://www.electrive.com/2021/04/27/toronto-to-procure-300-electric-buses/#:~:text=In%20Canada%2C%20the%20Toronto%20Transit,of%2060%20existing%20electric%20buses>.

should adopt the most environmentally responsible approach as the final arbiter of tax dollar investments.

We recognize that public transit is fundamentally a net positive for the environment. To meet our climate goals, we need more people riding Pace, CTA, and Metra buses and trains. Those vehicles also must be as clean as possible to limit further harm to the air quality and health of our communities, particularly in the most polluted, highest-need areas. Transit must lead by example and electrify as quickly as possible to strengthen its case as the core of a more sustainable transportation network in the Chicago region.

It's time to make a plan for electrification and a firm time commitment moving forward.

Respectfully submitted

Sierra Club, Illinois Chapter
The Climate Reality Project Chicago
Metro Chapter
Prairie Rivers Network
Illinois Environmental Council
Active Transportation Alliance
Center for Neighborhood Technology
(CNT)
Jobs to Move America
350 Chicago
Natural Resources Defense Council
League of Women Voters of Illinois

Environmental Law & Policy Center
Warehouse Workers for Justice
Greenways 2Go
Environmental Defenders of McHenry
County
Metropolitan Planning Council
Fox Valley Electric Auto Association
Go Green Illinois
Respiratory Health Association
Union of Concerned Scientists
Environmental Defense Fund