Could electrifying public transportation be the key to achieving energy equity goals?

By Bryan Jungers
February 21, 2024

Could electrifying public transportation be the key to achieving energy equity goals?

As cities across the US and Canada (and beyond) grapple with challenges related to sustainability and equity, the role of public transportation is coming into sharper focus. In particular, the electrification of buses and their role in providing sustainable public transportation for cities and schools is key to achieving energy transformation and, particularly, our energy equity and justice goals.

Kick your transportation electrification efforts into overdrive

Fill out this short form to start a conversation about your needs and how we can help.

But electric buses alone won't solve all of the problems; we'll need to transform our public transportation system as a whole, not just replace their engines and fuel tanks with motors and batteries. We need to think bigger than simply swapping out diesel buses for electric ones because if that's our only goal, the benefits will never seem worth the investment.

Instead, we need to broaden our perspective to see that electrification presents a new opportunity for transformation—the reimagining of what public transport in the US and Canada could be. Let's explore the impact electric buses have on society and on the prospects of sustainable public transportation in service of our broader energy equity goals.

The role of electric buses in energy equity

Electric buses are a significant step forward in the quest for sustainable urban mobility. By replacing traditional diesel buses with electric models, cities can reduce air pollution, lower greenhouse gas emissions, and improve air quality for all residents. And the shift to electric buses aligns with the transition away from fossil fuels and toward cleaner, renewable energy sources.

Electric buses also deliver one other major benefit that's difficult to quantify but nevertheless critical: they *improve* the experience of taking the bus! Regardless of whether riders have a choice in which mode of transport they take, an electric bus makes public transportation less stinky, dirty, and noisy. In fact, electric buses make riding the bus more interesting, modern, and even fun.

Electrified public transport places some of our most advanced clean technology within reach of those who could benefit from it most, in the service of those most in need. Because public transportation—unlike personal automobiles—is a great equalizer that offers access and mobility to all, regardless of means, age, or ability. As Enrique Peñalosa, former mayor of Bogotá, Colombia once famously put it:

> An advanced city is not one where the poor own a car, but one where the rich use public transport.

One of the most compelling aspects of electrified public transportation is its potential to promote energy equity. In many urban areas, marginalized communities disproportionately bear the burden of air pollution and its associated health impacts. Deploying electric buses in these communities can directly address environmental justice concerns while providing residents with cleaner and healthier transportation options.

The electrification of public transportation can contribute to a more equitable distribution of resources as well. In cities where the economic and energy burden associated with owning and operating private vehicles is significant, public transportation that's reliable and affordable is essential for accessing jobs, education, and essential services. By investing in sustainable public transportation infrastructure, all residents can have access to reliable and efficient mobility options, regardless of their socioeconomic status.

The challenge of improving public transport as we electrify

If you compare a map of people-moving railways in the US to a similar map of Europe, you'll notice a stark difference: the European map looks like a dense pile of worms while the American map is one thin loop, skirting the country's borders. Since train tracks are sparse and trains are prioritized for freight (not people) in the US and Canada, buses tend to do the heavy lifting for our public transport. But even our bus systems leave much to be desired.

Some experts who have spent their entire careers studying the problem of sustainable transportation have all but given up on the potential of public transport to address environmental and societal problems.

Some experts who have spent their entire careers studying the problem of sustainable transportation have all but given up on the potential of public transport to address environmental and societal problems. Take my graduate school adviser, Dr. Daniel Sperling from the Institute of Transportation Studies at UC Davis, for example. At the end of a talk he gave for transportation and energy researchers at the Massachusetts Institute of Technology in 2018, Dr. Sperling was pressed to justify the glaring omission of public transport from the future he painted in Three Revolutions—a tech-forward prognostication for the modernization of transportation.

Dr. Sperling essentially said we've been working on the transit problem for a long time and things have generally only gotten worse, not better. Essentially, to paraphrase his view, transit has no place in the future of sustainable transportation.

Dr. Sperling's position is interesting but somewhat controversial, and arguably it's not an especially equitable, progressive, or socially conscious one at that. Especially when you consider that even the tech-worshiping elites of Silicon Valley seem to think the bus is a pretty neat idea.

We tend to give Silicon Valley more credit than it deserves for reinventing something that already exists, then claiming it somehow improved upon that thing. Silicon Valley also has a penchant for monetizing services that were previously free and calling it innovation. The dark humor in this trend has been pointed out many times since around 2015. And perhaps it peaked in 2019 with the creation of the satirical Facebook tag group Did Silicon Valley Reinvent the Bus Again? which now has more than 130,000 members and counting.

We tend to give Silicon Valley more credit than it deserves for reinventing something that already exists, then claiming it somehow improved upon that thing.

Everyone from Elon Musk's Boring Company to Google's transportation research group to Meta's innovation team has tried to take credit for rediscovering the novelty of the bus. And for good reason. The inherent advantages—packing more people into a smaller footprint, using existing infrastructure (roads) and making frequent stops at small stations close to common destinations—are difficult to deny. It's hard to fight physics.

Driving the initiative forward (pun intended)

While Dr. Sperling seems convinced that car- and ride-sharing apps can serve us where public transportation has fallen short, I'm far less convinced. And from the looks of it, the tech companies creating those apps don't seem convinced either! Perhaps the untimely death of public transportation has been greatly exaggerated. That said, what comes next?

Consider the following suggestions for how public transportation can be improved, and how utilities can play a key role in the reimagining of this important mobility modality.

Prioritize coverage, speed, and reliability

With the COVID-19 pandemic came a sharp ridership drop in many public transit systems. In response—and in an effort to support riders who are often viewed as largely consisting of low- and moderate-income consumers—many advocacy groups have pushed for free access (including where I live in Tucson, Arizona).

Help transit agencies understand your distribution and resource planning so they can overlay their own plans for expansion.

While this sounds good and progressive in theory, in practice it makes it even harder for transit agencies and other transport groups to prioritize expansion and fund operations, which can even lead to some routes being retired (as was the case with the route my daughter used to get to school in 2023).

Instead, utilities should work with transit agencies to justify expansion of service, including longer

routes, more-frequent runs, and longer hours. Help them understand your distribution and resource planning so they can overlay their own plans for expansion.

Take the burden of electrification planning off their shoulders

While some agencies are leaders in electrification, many don’t have the staff or resources they need. And the agencies must focus on what matters most to them—ensuring quality of service and improving and expanding services wherever possible.

Aim to work alongside transport agencies to help them understand the technical and financial requirements of electrification, planning horizons, procurement timelines, and rate tariff implications. Do the heavy lifting so they don’t have to, and be their advocate as they transition their fleets to electric.

Understand the needs and challenges of your shared customers

There is likely a large overlap between your customers and the customers served by your local public transport agencies. Gaining a deep understanding of those customers—their needs, challenges, and gaps in services on both the energy and mobility sides of the fence—will enable you to work with these agencies more effectively and efficiently to serve your common customers.

© 2008 - 2026 E Source Companies LLC. All rights reserved.
Distribution outside subscribing organizations limited by license.