Run clean RNG buses not diesel during L hiatus

March 8, 2018

**BY JOANNA D. UNDERWOOD** | It’s a tough challenge figuring out how to move hundreds of thousands of New Yorkers from Brooklyn and across Manhattan when the L subway line shuts down next April for 15 months of repairs. But there are better solutions than one, in particular, that the city is now proposing: namely, putting another 200 diesel buses on our streets.

Diesel engines are powerful (certainly in comparison to electric engines) and diesel buses are relatively cheap to buy. Yet, diesel buses pollute our air and damage our health and climate. Four years ago, New York City committed to reducing greenhouse gas emissions (GHG) by 40 percent by 2030 and by 80 percent by 2050. Buying and running hundreds of diesel buses, as the Metropolitan Transportation Authority intends to do (it plans to order a total of 600 new buses this year, 590 of which would be diesels), would take us in the opposite direction.

One of the 295 Near Zero natural gas buses that run on renewable natural gas (RNG) fuel purchased by the Los Angeles County Metropolitan Transportation Authority a.k.a. LA Metro. Courtesy LA Metro

That makes no sense, especially when there are better alternatives. State Senator Brad Hoylman advocates experimenting with electric buses. It’s a good idea to see how the technology can work in New York City, and how the high upfront costs of electric buses can be addressed.

But there’s an even better and more practical solution, which is not experimental but fully commercial and scalable today: buses powered by “biomethane,” also called renewable natural gas (RNG) fuel. Using these buses along the L train route during the subway line’s outage would allay residents’ concerns about increased noise and air pollution, while helping the city move toward its ambitious climate-change goals.

RNG fuel is made by collecting and purifying the methane-rich biogases emitted by decomposing organic wastes, such as food waste, municipal wastewater, farm waste, etc. RNG is chemically similar to conventional natural gas, but it’s not a fossil fuel. Producing it requires no drilling — it’s a fully renewable resource.
Buses equipped with new “Near Zero”-emission natural gas engines can burn either conventional natural gas (CNG) or renewable natural gas. The difference is that RNG has the lowest greenhouse gas emissions of any fuel.

Over its life cycle, burning conventional natural gas cuts GHG emissions a modest 22 percent compared to diesel, whereas renewable natural gas cuts them by 70 percent to 300 percent! If that seems impossible, let me explain: Producing RNG involves capturing biogases emitted by decomposing organic wastes — mostly methane, a powerful greenhouse gas. Those gases would otherwise escape into the air and warm the climate if they weren’t collected, refined and burned as fuel. When food waste or manure is the source of the fuel, more greenhouse gas emissions are captured by producing RNG than are emitted by the buses or trucks using it. So, RNG is actually what is called “net-carbon-negative.”

That’s why bus (or truck) fleets that convert to renewable natural gas would meet or exceed New York’s goal of reducing greenhouse gas emissions by 80 percent not several decades from now in 2050 — but right away.

RNG-powered buses and trucks would also improve public health. Certified by the California Air Resources Board and the U.S. Environmental Protection Agency, emissions from Near Zero engines are 90 percent below E.P.A.-allowable levels for health-damaging nitrogen oxides and particulates. They are also 50 percent to 80 percent quieter than diesel engines. According to a recent study by the University of California at Riverside, no bus or truck is cleaner on a life-cycle basis, not even electric ones, than RNG vehicles. Drivers and residents alike reap the health benefits.

Near Zero buses or trucks cost somewhat more than diesels — an additional $40,000 or more per vehicle, depending on the model and features. But these vehicles many benefits, especially when run on RNG fuel, are inspiring fleet owners to adopt them. Los Angeles Metro has purchased 295 Near Zero buses, with an option to convert its entire 2,200 transit bus fleet. Santa Monica’s “Big Blue Bus” fleet has committed to converting completely, and more municipalities are following suit.

New York City could do this, too. The city should buy Near Zero buses instead of diesels when it needs new vehicles. But beyond that, there are at least 800 existing M.T.A. buses running on conventional natural gas today. With no modifications whatsoever, they could be running on RNG. A simple change in fuel procurement contracts is all it would take.

There is plenty of renewable natural gas available. More than 20,000 buses and trucks in the U.S. already run on RNG. It could be delivered to New York City buses via refueling stations that deliver conventional natural gas today, at the same price. The M.T.A.’s Spring Creek Depot natural-gas refueling facility is already serving buses in Canarsie, Brooklyn, convenient to the L line.

RNG fuel available today comes mostly from out-of-state processing facilities. But in the foreseeable future, the city’s own huge organic-waste streams, which the Department of Sanitation is working hard to collect, could be used to produce the fuel locally.

In short, buses with Near Zero engines powered by RNG fuel could help solve the L train problem. And converting other New York City truck and bus fleets to RNG fuel would similarly turn them from net polluters to net reducers of greenhouse gas, while eliminating the health and noise impacts from our traditional reliance on diesel.

Again, the city has committed to reducing greenhouse gas emissions by 40 percent by 2030 — just 12 years from now. Time is of the essence: We should start using RNG-powered buses and trucks now.

Underwood is founder and board member, Energy Vision; Energy Vision is a national environmental NGO that analyzes and promotes clean energy and petroleum-free transportation solutions for a sustainable future.