



# 2021 Clean Fleet Update

September 2021



NYC Fleet

**NYC**  
**DCAS**

Citywide Administrative  
Services



## Overview

The City of New York, under the leadership of the NYC Department of Citywide Administrative Services (DCAS), has built the most sustainable municipal vehicle fleet in the country. The City has been guided in its work by the Clean Fleet Plan published in 2015. The City has achieved the key milestones from the plan, including procuring its 2,000th electric vehicle (EV) in 2019, over five years before its 2025 target. Through June 2021, the fleet now includes over 3,000 on and off-road plug-in or solar vehicles. Through the use of electric vehicles and the use of alternative fuels, the City's fleet is on track to achieve the Clean Fleet Plan's goal of a 50% reduction in greenhouse gas (GHG) emissions by 2025 and 80% by 2035, from a 2005 baseline. The use of alternative fuels has included widespread use of biodiesel – in blend of B5 to 20 - and a successful pilot of renewable diesel, a 99% petroleum free fuel.

While the City has been implementing its Clean Fleet mandates, climate science has continued to be refined. The City has more in-depth information on the impacts of climate change and the information is alarming. Global emissions continue to increase annually, and there is a finite amount of global carbon emissions that can be emitted before the world reaches catastrophic levels of warming. This necessitates doing more and doing it sooner. The International Panel on Climate Change (IPCC) released its Sixth Assessment on our most recent understanding of climate science in August

2021. The report concludes that human influence unequivocally has warmed our planet and that rapidly reducing greenhouse gas (GHG) emissions to net zero is crucial to maintaining warming within 1.5 degrees Celsius to stave off the worst possible impacts of climate change.

Given the best available science, New York City has revised its climate goal to full carbon neutrality citywide by 2050. Reaching this goal requires the City to track greenhouse gas emissions in its yearly inventory, implement policies to rapidly reduce emissions, and develop carbon offset strategies.

New York City has committed to leading by example in its municipal operations with the goal of reaching carbon neutrality in its on-road, non-emergency fleet operations by 2040. Mayor Bill de Blasio signed Executive Order 53 in February 2020, which codified the City's goal to have all on-road vehicles in the fleet be all-electric or plug-in electric models by 2040. The executive order calls for a bi-annual Clean Fleet Transition Plan and the creation of a Fleet of the Future Network that will bring private sector, nonprofit and public sector fleets together to strategize on the clean fleet transition.

The City has already greatly expanded the electric vehicle fleet. The City has introduced electric sedans, SUVs, crossovers, and minivans. These four types alone represent most vehicles in use privately today. The City has also implemented the use of off-road electric carts, solar light towers and sign-boards, and electric forklifts. Ambulances have plug-in auxiliary power, and the City is

taking first steps with electric vans, pickups, garbage trucks, sweepers, police cars, and school buses. DCAS will work with the fleet industry to develop electric models for all fleet types including police, fire, sanitation, and specialized truck options. DCAS will also implement its first repowering projects in Fiscal Year (FY) 21, taking existing diesel trucks and converting them to all-electric. The City of New York is committed to having zero tailpipe emissions from its fleet by 2040 and will use cleaner biofuels until it gets there.

Reaching carbon neutrality requires the City to right-size its fleet by identifying and sharing underutilized and inefficiently utilized resources through telematics data and fleet-sharing technology, as well as adopting alternative fuels for its remaining assets. Reaching the City's GHG reduction goals will reduce emissions by approximately 285,000 tCO<sub>2</sub>e using a 2005 baseline.

For a carbon-neutral clean fleet, the City will now:

- Add at least 4,000 electric vehicles (EVs) to its municipal fleet by 2025, doubling its initial procurement goal within the same timeline. All non-emergency light-duty vehicles will be electric by 2040.

- The City's electric program will include all electric school and correction buses, garbage trucks at the NYC Parks Department and NYC Department of Sanitation (DSNY), and medium-duty electric truck options as they enter the marketplace.

- Continue efforts to right-size vehicles and reduce fleet size and commuting, where possible, through review of telematics data – data collected from the operation of vehicles - as per Executive Order 41 of 2019.
- Procure renewable diesel and biodiesel blended fuels for medium and heavy-duty vehicles and off-road diesel equipment.
- Pursue design efficiencies for all fleet vehicles to extend the impact of alternative fuel implementations. This includes transitioning to all hybrid police cars and plug-in hybrid fire department (FDNY) ambulances.
- Achieve carbon neutrality by 2040 in municipal fleet operations – equivalent to 300 million pounds of coal not burned or planting five million trees compared to a 2006 baseline.



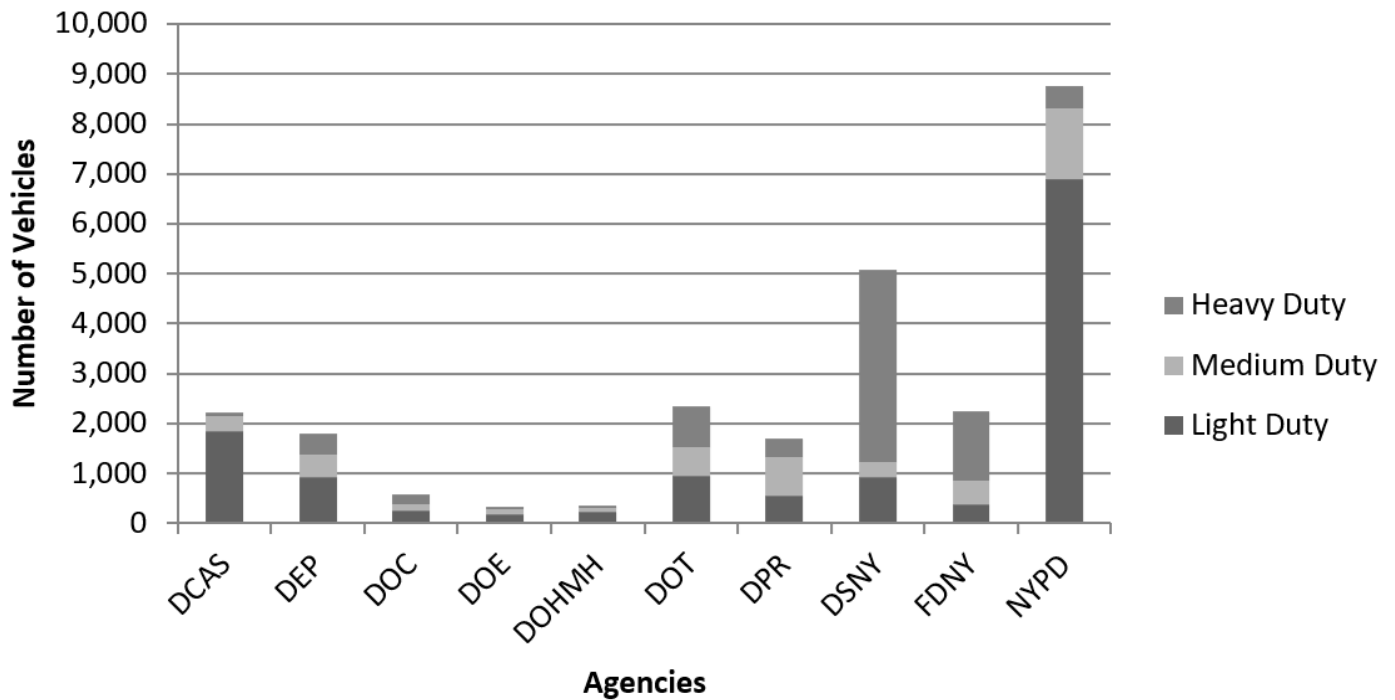
## Progress to Date

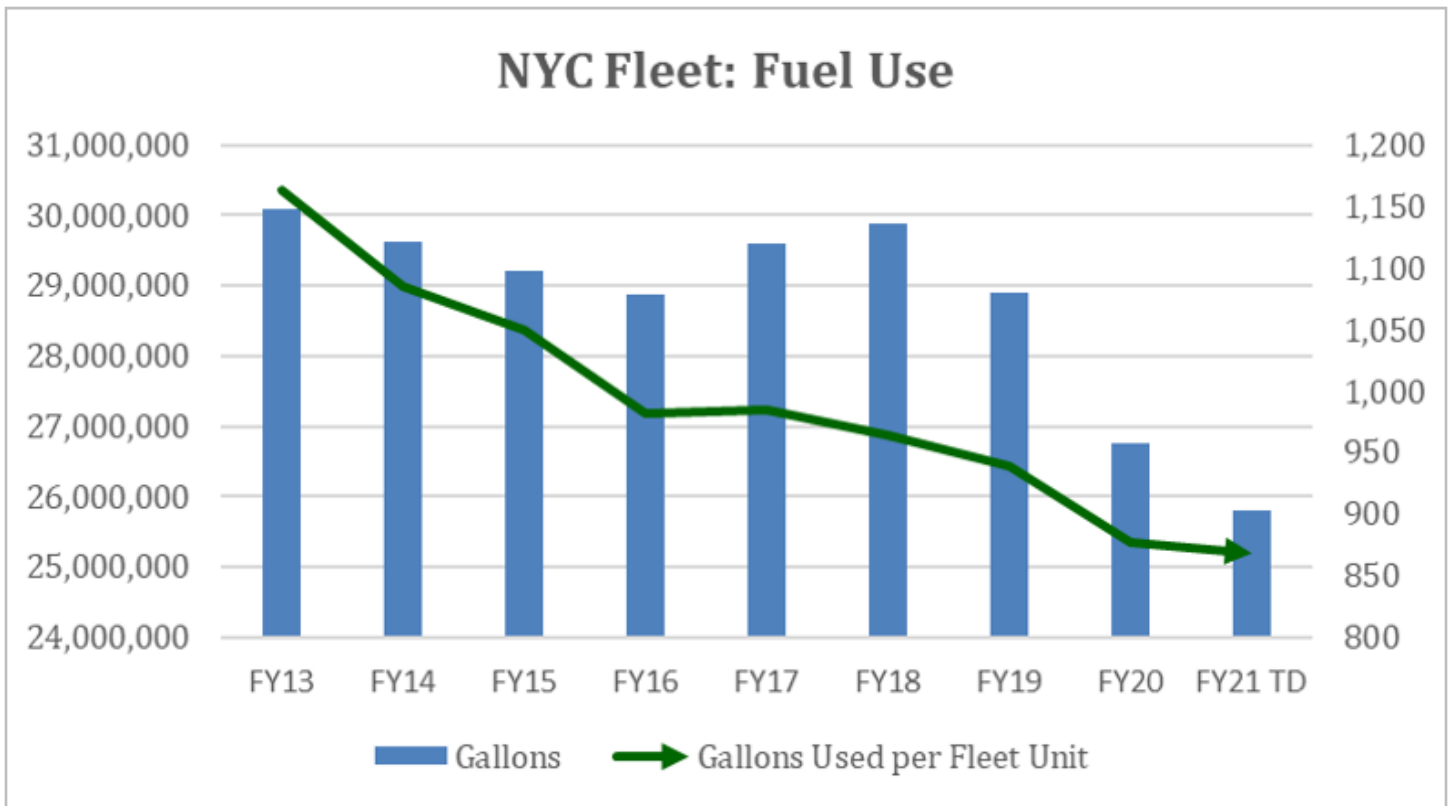
New York City's fleet currently consists of 29,718 vehicles maintained at 37 dedicated repair locations. There are 407 separate fueling locations that serve the fleet in-house. In addition, 1,061 electric vehicle ports serve the fleet. Across 50 City agencies and offices, more than 2,000 staff work full-time servicing, dispatching, and administering the fleet. Nearly one billion dollars is spent annually on fleet repair, fueling, and procurement.

As of fiscal year (FY) 2021, over 19,568 City fleet units, 67% of the fleet, used a cleaner fuel including biodiesel, renewable diesel, electric and natural

gas. Outside of the federal government, this is currently the largest alternative fuel using fleet in the United States. Almost all non-emergency NYC government light duty vehicles are either gas-hybrid, plug-in hybrid, or fully electric. New York Police Department (NYPD) is transitioning its patrol fleet to be all gas-hybrid starting with a first buy of 409 hybrid police response units in 2020. NYPD also introduced their first all-electric patrol vehicle in July 2021. In FY21, average fuel economy for new light duty vehicles was over 100 MPG for the fourth straight year. In the last four years, the City's fleet has reduced fuel use 1 million gallons per year. Overall fuel use is down 14% since FY13 and 25% per fleet unit.

### Number of On-Road Fleet Vehicles by Agency

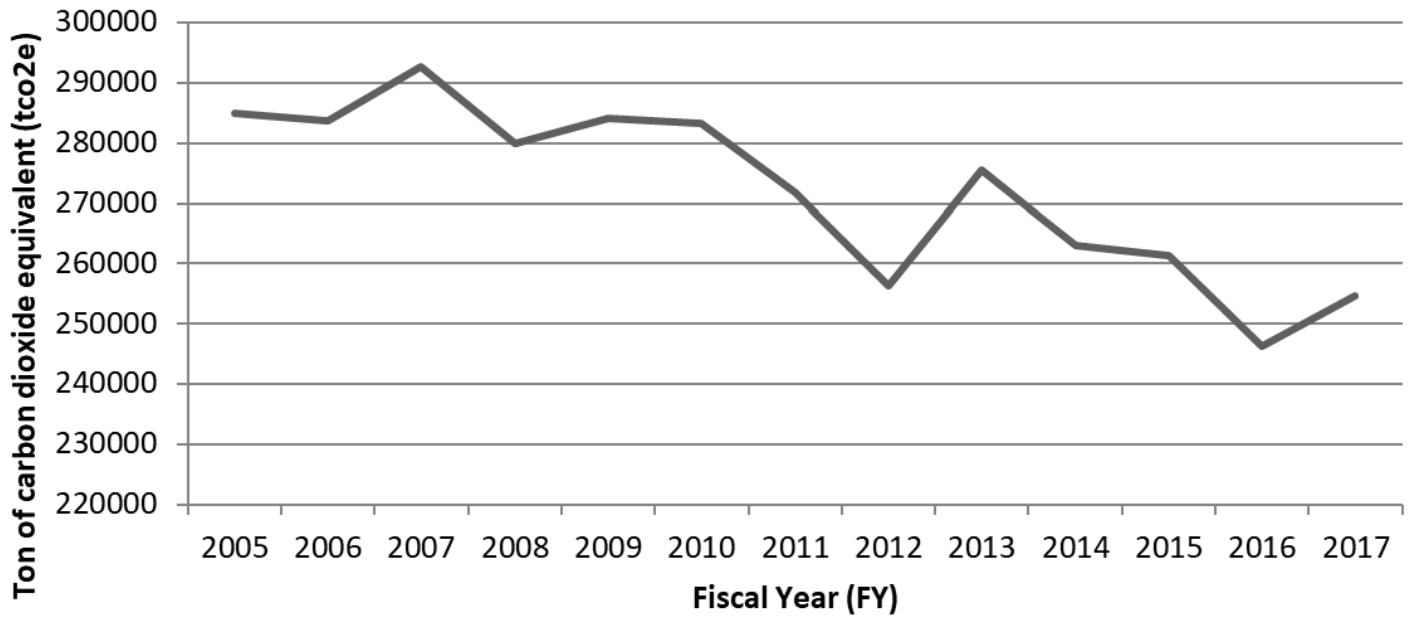




Over the past decade, New York City has grappled with the impacts of climate change firsthand. Hurricane Sandy in 2012 resulted in mass flooding that impacted our infrastructure and resulted in loss of life. The fleet grew after Sandy to meet the resiliency needs of a City facing 21st century climate risks. Most of this equipment was off-road support units like emergency light towers, solar sign-boards, forklifts, water pumps, and backup fuel units and additional emergency response units. Even though the fleet grew in the past decade, on road municipal transportation emissions went down 10 percent between fiscal year (FY) 2005 and 2017.

The reduction in emissions came from the adoption of electric vehicles, efficiency and anti-idling measures, and the growing use of biogenic fuels. Electric vehicle adoption accelerated to over 3,000 units in FY21. New York City also went from using nearly no biogenic fuels in 2005 to 1.7 million gallons of biofuels (B100 equivalent) in FY21. In FY19, DCAS piloted nearly one million gallons of renewable diesel. DCAS is working to expand the renewable diesel initiative now.

## On-Road Fleet Greenhouse Gas Emissions



The City is continually revisiting its data reporting standards to provide the best possible information to track our GHG impacts across all sectors. Improvements in data reporting through telematics and revising the greenhouse gas inventory with the best available information helps the City transparently

report the largest emitters of GHG as well as crafting climate policy backed by the best available data. DCAS operates a Fleet Office of Real Time Tracking (FORT) which live tracks nearly 23,000 fleet assets daily, including the City's school busses.

## Pathway to Carbon Neutrality

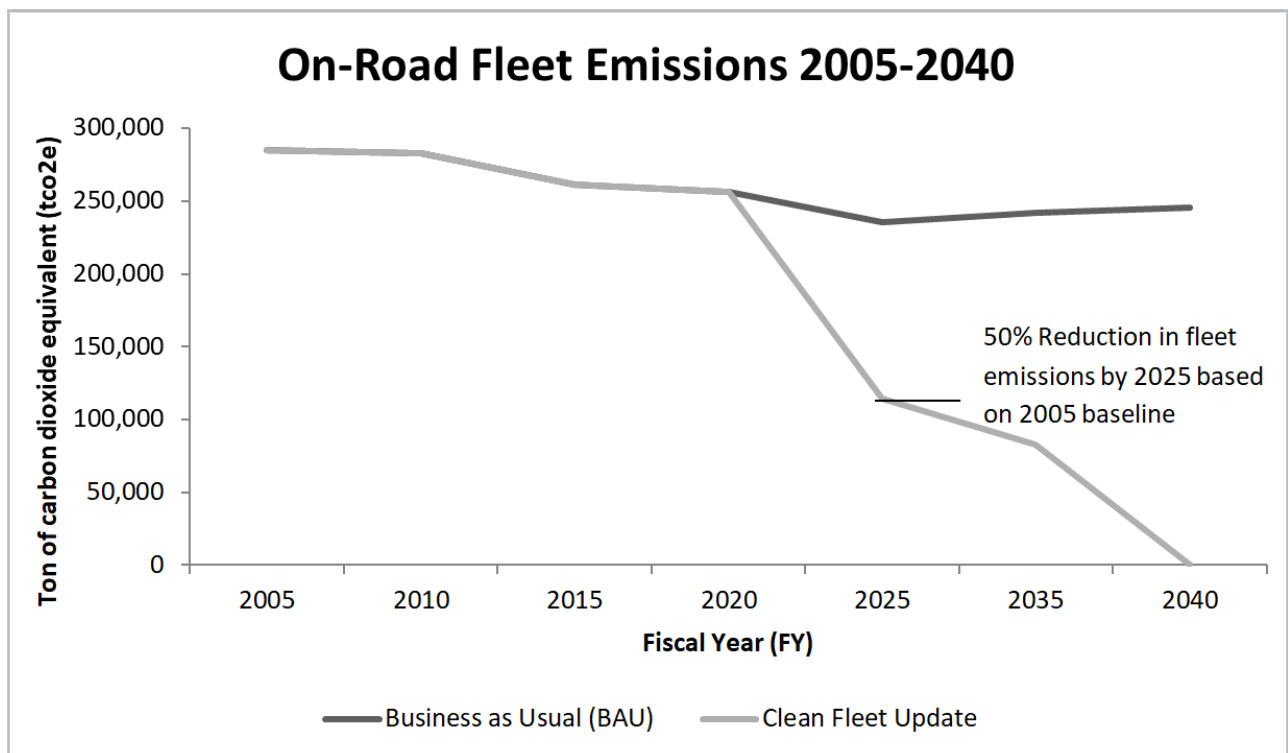
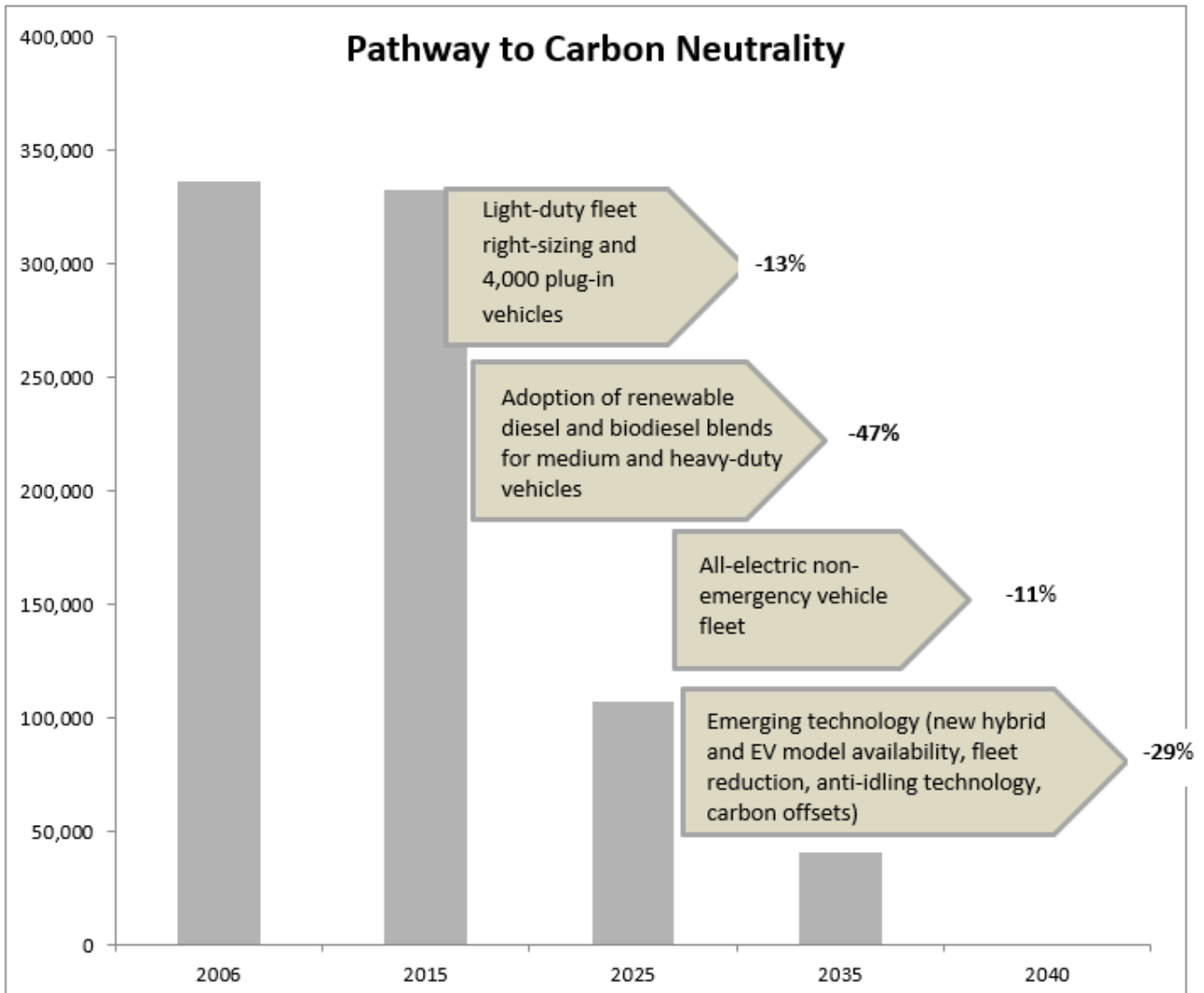
New York City's target of carbon neutrality for on road non-emergency fleet operations by 2040 is ambitious and requires immediate action. C40's Defining Carbon Neutrality for Cities & Managing Residual Emissions report acts as a guidebook for best practices in municipal emissions reduction. The report states that carbon neutral cities have to 1) Develop a plan to reach carbon neutrality by 2050 or earlier based on evidence and available data; 2) Set ambitious emission reduction targets based on their GHG inventory; 3) Prioritize transformational climate actions; 4) Engage other government and community entities on the deployment of these strategies; 5) Monitor GHG reduction and update targets as needed; and 6) Compensate for residual emissions to achieve net-zero emissions.<sup>1</sup>

The municipal greenhouse gas emission inventory is the backbone of the clean fleet update. A business-as-usual scenario for fleet emissions assumes that the City's clean fleet initiatives are frozen and do not progress. In this scenario, the electrified fleet is capped at 2,000 vehicles. Charging infrastructure is not built-out further to allow a greater use of these electric vehicles. The medium and heavy-duty vehicles continue to use a blend of 20% biodiesel (B20) roughly seven months out of the year and 5% biodiesel (B5) for the remaining colder months. Fleet emissions still would go down 14% by FY 2050 based on a 2005 baseline.

Progress to date in implementing sustainable fuels and vehicles has gone above and beyond the commitments of the original clean fleet plan. Emissions are already down 10% based on a 2005 baseline. Despite the many achievements in the City's fleet, business-as-usual is not enough to meet sustainability goals.

The City's fleet will reach carbon neutrality by procuring sustainable vehicles and fuels as well as using existing fleet resources more efficiently. In 2040, the City's fleet will have been right-sized to meet agency needs and fueled entirely using low-emissions technology. The City's on-road fleet will be entirely electrified. Alternative fuels like biodiesel and renewable diesel will meet any remaining needs of the fleet across the off-road and specialized equipment classes. Emerging technology, including a wider range of electric vehicle model availability and improved anti-idling technology, will meet some of the fleet's future needs as well.

<sup>1</sup> <https://www.c40.org/researches/defining-carbon-neutrality-for-cities-managing-residual-emissions>





## Sustainable Procurement

### Electric Vehicle Procurement

EVs have the potential to radically reduce greenhouse gas emissions in the City's fleet. EVs do not produce tailpipe emissions. Recent studies show that electric vehicles produce less lifecycle emissions than their internal combustion engine counterparts, even when considering the higher emissions associated with battery electric vehicle manufacturing.<sup>2</sup>

The City of New York has the largest electric municipal vehicle fleet in the United States. In 2015, New York City committed to having at least 2,000 EVs in its fleet by 2025. In May 2019, DCAS announced that it had reached its goal of having over 2,000 electric vehicles in its fleet over five years early. DCAS currently operates over 3,000 plug-in on and off-road electric and solar units.

The City currently has fully-electric (BEV) or hybrid-electric (PHEV) models for sedans, SUVs, minivans, and crossovers. DCAS is working to develop options for plug-in pickups and vans. FDNY ambulances currently have hybrid and plug-in capacity. DCAS, the NYC Parks Department, and DSNY will be working on electric garbage trucks and sweepers and DCAS and NYC Department of Correction(DOC) will pilot electric correction busses. The NYC Department of Education (DOE) has received its first three electric school buses and will be growing that fleet by at least an additional 75 buses over the next two years. On

Earth Day 2021, the City committed to having an entirely electric school bus fleet by 2035, with an interim goal of having the NYC School Bus Umbrella Corporation's fleet be all-electric by 2030.

The City's fleet vehicles are served by over 1,061 electric vehicle charging ports, 89 of which are entirely solar-powered. The City of New York operates the largest network of mobile solar carports in the world. DCAS also procured its first mobile charger, saving on the construction costs of installing a hardwired charger as well as providing greater flexibility to city agencies on charging location. Additional mobile charging units are currently being procured. The City has also implemented its first 90 fast electric vehicle chargers with a capacity of 50 kW. To date, DCAS has also made eight of these fast chargers at four sites available to the general public, with over 1,000 public uses to



<sup>2</sup> <https://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-full-report.pdf>

date. In Phase 1, the mayor allocated \$10 million to install 100 fast chargers with a 50kW or higher capacity. This project is 90% complete and will be fully complete in 2021. A Phase 2 project will add 275 fast charging sites citywide. The expansion of fast charging availability is crucial to meeting the operational needs of the fleet as they can provide a charge equivalent to an average day's vehicle use in 15 minutes or less. Overall, the use of liquid fuel has gone down citywide while the use of electric vehicles has risen.

In New York City's energy mix, an electric vehicle produces the GHG emissions equal to a gasoline vehicle with a 100 miles per gallon (mpg) fuel efficiency, well above the mpg efficiency of gasoline vehicles currently on the market.<sup>3</sup> DCAS reported a 65% savings in maintenance costs tied to the lower cost of its electric fleet operations.

## Alternative Fuels

Biogenic fuels, made from feedstock and other biomass, are a turn-key solution to clean up the City's medium and heavy-duty fleet vehicles. Alternative liquid fuels are particularly important as the model availability of electric alternatives remains low in these sectors. The City currently has 114 light and heavy-duty compressed natural gas vehicles. All diesel vehicles operated by the City currently use biodiesel blends of at least 5% (B5), with 20% biodiesel (B20) used eight months of the year. DSNY and NYC Parks have also implemented some use of B20 in the winter. Higher blends of biofuels are used in the warmer months as cold weather can make the biodiesel gel.

In 2018, the City piloted 950,000 gallons of renewable diesel for its fleet. Renewable diesel is a petroleum-free fuel created from renewable feedstocks. Renewable diesel meets the same ASTM classification as petroleum diesel. Renewable diesel does not have the same cold weather impacts or compatibility issues as conventional biodiesel, and can be produced and shipped using the same pipeline, refining, and storage infrastructure as petroleum diesel.<sup>4</sup>

After a successful pilot, DCAS is currently pursuing a contract for renewable diesel. It's anticipated that the contract will bid for a fuel that is either 80 or 95% renewable diesel and 20 or 5% biodiesel. This blend would be 100% biogenic, which would significantly reduce greenhouse gas emissions in the fleet. New York City recognizes that there are still lifecycle impacts of biogenic fuels and will not procure palm oil based biogenic fuels due to the deforestation and human rights concerns with the product. Currently, almost all renewable diesel in the United States is sold in California where a low carbon fuel standard (LCFS) state policy creates monetary incentives and offsets. A similar policy in New York State will be critical at both a supply and cost level if the City is to implement a full switch out of diesel fuel to renewable diesel as we make the longer-term transition to electric.

<sup>3</sup> <https://blog.ucsusa.org/dave-reichmuth/are-electric-vehicles-really-better-for-the-climate-yes-heres-why/>

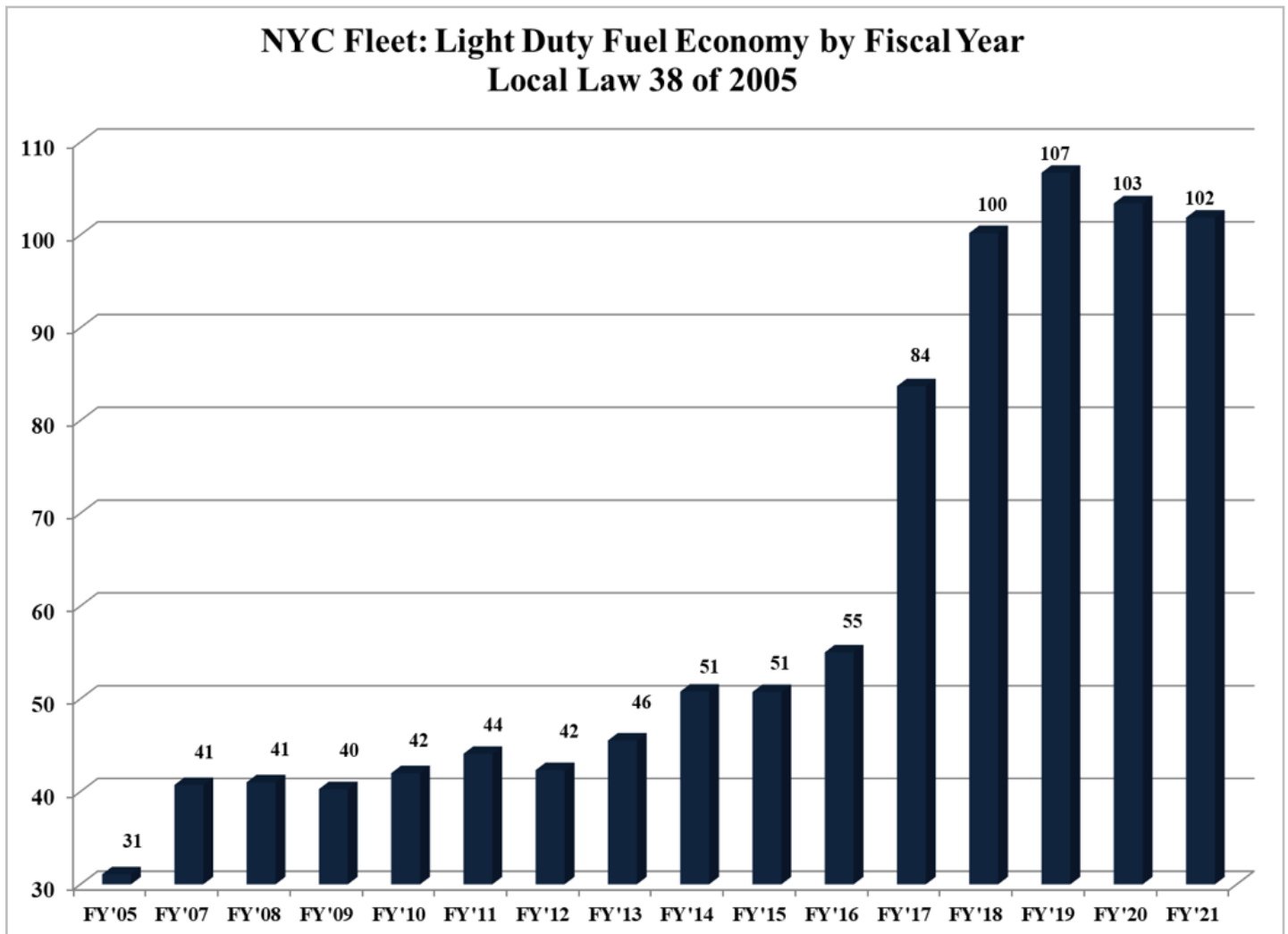
<sup>4</sup> <https://www1.nyc.gov/assets/dcas/downloads/pdf/fleet/Renewable-Diesel-Report-2019.pdf>

## Improved Efficiency

### Fuel Efficiency

By the end of FY 2021, DCAS announced that the City's fleet achieved an average fuel economy of 102 miles per gallon for light-duty vehicles purchased that year. The 102 mpg milestone was achieved through a combination of procuring all electric vehicles, plug-in hybrids, and hybrid SUVs. This was the fourth straight year that average new vehicle fuel economy was over 100 mpg.

The City's fleet continues to become more efficient. NYPD has pledged to adopt 100% hybrid patrol and response vehicles, which represents 6,724 vehicles that will soon be more fuel efficient. Plans to expand electric vehicle procurement and biogenic fuel use overall demonstrates New York City's commitment to sustainable transportation, and we look forward to working with the Federal and New York state governments to further expand these efforts.



In 2000, the City operated two alternative fuel model vehicles. In 2021, the City fleet has 17 models of alternative fuel vehicles on contract. The models in the City's fleet includes:

- Chevy Bolt
- Chevy Volt
- Chevrolet Express XL Hybrid Passenger Van
- Chevrolet Express XL Hybrid Cargo Van
- Ford Escape Hybrid
- Ford Utility Interceptor Hybrid
- Ford Responder Hybrid
- Mitsubishi Outlander PHEV
- Diesel Hybrid 6 Yd Collection Truck (Hino)
- Diesel Hybrid Dry Freight Truck (Hino)
- Toyota Prius
- Toyota Prius Prime
- Toyota Highlander Hybrid
- Toyota RAV4 Hybrid
- Chrysler Pacifica Hybrid
- Hybrid Sweeper
- CNG Sweeper
- Nissan Leaf

## Telematics

Reliable data on fleet operations is key to reaching the City's carbon neutrality goals. The City cannot meet its carbon neutrality goal without robust data monitoring protocols for its fleet. Telematics data allows the City to take a bird's eye view of how efficiently the fleet is being used, as well as provide

granular data down to the operations of each individual vehicle. Telematics data has the potential to increase the fleet's efficiency which saves money on fuel, repairs, and vehicle procurement while reducing GHG emissions.

In March of 2019, Mayor Bill de Blasio signed Executive Order (EO) 41 which mandates that DCAS establish telematics for all City fleet agencies. To date, 47 agencies and offices have full telematic capabilities in place and two are partially compliant. Using the telematics data, DCAS is working to establish an 80% general usage standard. Today, the fleet is used approximately 63% of the time across all agencies. The executive order called for a reduction of at least 1,000 on-road vehicles by June 30, 2021 as compared to the preliminary Mayor's Management Report (MMR) fleet count in FY19. As reported in the FY21 MMR, the on-road fleet reduction was 1,109. There was also an off-road reduction of 332 units.

Additionally, the order called for the reduction of at least 500 vehicles for home commuting use. This goal has been achieved. The order also called for the down-sizing of at least 250 SUVs to sedans. For non-emergency agencies, DCAS reduced 97 units to date or 6%. DCAS is also working on additional down-sizing, including the replacement of 39 SUVs to all-electric Chevy Bolts at NYC Parks in FY22. For police and emergency response units, major manufacturers discontinued their sedan models. As an alternative to SUV to sedan replacements, law enforcement

agencies are transitioning from gas to hybrid units. For law enforcement, DCAS has already replaced 107 gas SUVs with hybrid police SUVs and 651 gas sedans with hybrid police sedans, when they were still available. The fiscal impact of COVID-19 has postponed some vehicle replacements.

Supported by EO 41, DCAS achieved record high levels of auction revenue in FY21, selling used City cars, and achieving record low use of liquid fuels. DCAS and the NYC Office of Management and Budget (OMB) also tightened procedures for vehicle procurement and authorized commuting as a result of the executive order.

This will ensure closer review of new vehicle procurements and requests to commute going forward. DCAS issued a comprehensive update to the City of New York's Fleet Manual and Drivers Handbook to formalize these changes.

## **Fleet Share**

Local Law 41 of 2015 marked the kickoff of a car sharing system for City fleet vehicles. City agencies have access to private shared cars citywide for occasional transport needs. In 2020, 49 agencies made trips using private shared cars. Using sharing technology, 640 city-owned fleet units from the NYC Administration for Children's Services (ACS), NYC Department of Transportation (DOT), NYC Department of Environmental Protection (DEP), NYC Parks Department, DSNY, and the Department of Health and Mental Hygiene (DOHMH) are also shared internally on the same platform used for

the private shared cars. This achieves the efficiencies of sharing while maintaining access to official city government license plates and marked vehicles. City employees can reserve a fleet share vehicle to meet occasional workplace driving needs. Fleet share cuts down on the number of vehicles procured by the City and frees up parking on our streets and in our depots.

Included in the fleet sharing program are 80 all-electric crossover units owned by DCAS and made available centrally to all city agencies. DCAS is planning an upgraded sharing technology in 2022.

## Other Emerging Technologies

### *Defining Carbon Neutrality for Cities & Managing Residual Emissions*

recommends that cities reevaluate their climate action targets every five years.<sup>5</sup> The best available science and technology will change over time, and cities must be able to adapt to emerging trends. New York City is tracking future alternative fuel vehicle availability, anti-idling measures, electric vehicle charging innovation, and carbon offset strategies.

### **Future Vehicle Availability**

Over 30 models of light-duty electric vehicles are available in the United States across all price categories. However, model availability in medium and heavy-duty sectors is still lagging behind the light-duty sector. Through DCAS's annual NYC Fleet Show and its biweekly Fleet Federation meetings, the City is actively researching developments in electric vehicle technology and models across all sectors. DCAS is also exploring alternative transportation options like pedal-assist cargo and other bicycles for DOHMH and other agencies whose operational needs can be met by such a vehicle.

New York City has purchased its first municipally-owned all-electric school buses to provide zero emission vehicles for school children. DOE is piloting three initial electric school busses and will be evaluating these in operation in 2021-2022. The City plans to increase its fleet of electric school buses after these initial assessments, including a \$30 million investment in an additional 75 electric

school buses over the next two years leading up to a goal of having an all-electric school bus fleet by 2035.

### **Future Fuel Availability**

The City is tracking fuels that can meet the full operational needs of its fleet. Increasing the biofuel supply available to New York City is crucial to reaching carbon neutrality. Biofuels include both biodiesel and renewable diesel (RD). Both are produced using domestic and renewable feedstocks. Renewable diesel achieves the same technical standards as regular diesel but can be more costly than biodiesel. Biodiesel has some use limitations including cold weather and materials compatibility. DCAS is exploring the best way to balance carbon neutrality, cost, and operational realities. The City has a large trucking and off-road fleet, and even by 2040 some diesel will likely be needed to fuel its fleet to perform in all weather conditions. Emerging fueling technologies, as well as offsetting emissions, are key components to reaching full carbon neutrality. DCAS is also working with NYC Parks to pilot B50 in FY22. Fleet currently uses biodiesel in blends of five to 20%.

### **Anti-idling Measures**

Anti-idling technology allows the City's fleet to reduce emissions while maintaining the operational needs of the vehicles. FDNY currently has 437 hybrid, plug-in battery deployments in

<sup>5</sup> <https://www.c40.org/researches/defining-carbon-neutrality-for-cities-managing-residual-emissions>

ambulances which allows emergency responders to use essential medical equipment without their engine idling. An additional 136 units are on order, covering 99% of the City's ambulance fleet.

DSNY also expanded the Neutral @ Stop anti-idling program for garbage trucks by 14 vehicles. There are currently 26 units deployed. The program implements technology that disengages the vehicle's transmission when stopped, which reduces the load on the engine and conserves fuel.

NYC Parks, DOC, and NYPD have also implemented 73 hybrid vans and pickups, and the City operates 99 hybrid diesel trucks. Parks has an additional 113 hybrid pickups on order.

### **Partnering with Public and Private Fleets to Build the Sustainable Fleets of the Future**

No individual fleet can transform the entire fleet sector alone. It will take the combined pressure and advocacy of the larger fleet community to effectuate changes in design, emissions, and safety. To help achieve this, DCAS will work with DOT, the Business Integrity Commission (BIC), the Department of Consumer and Worker Protection, the Mayor's Office of Climate and Sustainability (MOC&S), and others to establish a contact list and communication network for public, private, and non-profit fleets operating in the five boroughs of New York City. This network will be used to establish lines of communication on issues of sustainable and safe fleet operation. DCAS will

establish newsletters, events, and trainings aimed at these partner fleets and will share best practices throughout the network.

DCAS will issue, implement, and update a Clean Fleet Transition Plan (CFTP). This plan will be updated at least every two years and follow the format of the existing Safe Fleet Transition Plan (SFTP) implemented by DCAS as part of Vision Zero. The plan will outline alternative fuel, fuel efficiency, and electrification requirements for all City fleet units by vehicle type. The plan will also review fuel efficiency and emissions reductions outfitting that are implemented for specific fleet segments only and/or being tested. As part of the plan, the City will report on electrification and charging options for each class of fleet vehicles. The plan will include a schedule for adoption of cleaner vehicles, technologies, and fuels which will lead to implementation of the OneNYC goal of a carbon neutral City fleet by 2040. In addition to City fleet agencies, DCAS will consult about this plan with private, non-profit, and other public fleets that operate in New York City. The plan will include a section discussing options for requiring and/or encouraging adoption of these clean fleet improvements with the private fleets the City contracts and regulates. The first CFTP plan aimed at both public and private fleets will be published by April 1, 2022. DCAS has finalized an agreement with US DOT Volpe Center to partner on production of the report.

## **Con Edison Curbside Demonstration Project**

New York City is partnering with Con Edison on the deployment of curbside level-2 electric vehicle chargers to serve on-street parking spots. One hundred and twenty level-2 plugs will be deployed across the city, with twenty of those plugs located in designated City fleet vehicle parking spots. The remaining hundred plugs will be available to both City fleet vehicles and the general public. The City's fleet size and the breadth of its deployment of EVs makes it an ideal anchor tenant to support the curbside charging network pilot. The first 20 electric vehicle charging plugs are expected to be installed on dedicated fleet parking spots in fall 2021. The pilot will run for at least three years with the option of extending the pilot for an additional fourth year.

DCAS has also taken advantage of Con Edison's PowerReady program incentives. In September, the City announced the first \$250,000 of up to \$1.3 million in support. In addition, Con Edison also provides incentives for off-peak charging through its SmartCharge program. So far, the City has received \$157,000 from the Smart Charge program.

## **NYCx Climate Challenge**

In 2017, New York City launched a Moonshot Challenge calling on the tech industry to develop solutions for scaling electric vehicle charging infrastructure and accelerating the use of electric vehicles citywide. Nearly three dozen international and local organizations

submitted breakthrough solutions, including solar canopies, energy-harnessing infrastructure, and software to connect vehicle batteries to the energy grid. Ultimately, the German-based company Ubitricity won the challenge.

Ubitricity integrates electric vehicle charging infrastructure into existing street furniture like street light poles. Electric vehicle drivers bring their own charging cord to the street pole to access the charging plug. This allows the street to remain uncluttered with cables when the charger is not in use.

DCAS is leading a pilot of 100 Ubitricity units in collaboration with NYC Economic Development Corporation (EDC), DOT, and the Mayor's Office of Climate and Sustainability. The first round of installations at EDC sites is expected to be operational by fall 2021.

## **Offset Strategies**

There is an urgent need for cities to reduce emissions to meet the goals of the Paris Climate Agreement. There is an ongoing debate on how to deal with residual emissions. It may not be operationally feasible to completely phase out liquid carbon fuels throughout the City's fleet by 2040. Technical limitations on reducing emissions means that carbon dioxide removal technologies and biological sinks may be needed as part of reaching carbon neutrality. Offsetting residual emissions by purchasing verified carbon credits that reduce or avoid the same amount of carbon dioxide-equivalent can be a part of this strategy.



New York City is currently reviewing the best offset strategies for compliance with Local Law 97 of 2019. The local law, also part of New York City's Climate Mobilization Act, establishes the framework to achieve at least a 40% reduction in emissions by 2030 through targeting emission reduction from impacted buildings larger than 25,000 square feet. Limited use of offsets will be allowable to help building owners comply with the nearest-term requirements. The City will also consider the best way to comply with its ambitious goal of carbon neutrality, integrating offsets when appropriate in transportation.

## Other Best Practices in Sustainable Fleet Operations

New York City continues to be a national leader in sustainable fleet procurement, fulfilling its commitment of having the largest electrified municipal fleet in the United States. Locally, the Port Authority of New York and New Jersey (PANYNJ) has committed to electrifying its airport bus fleet, having deployed 36 buses as well as 130 electric light-duty vehicles.<sup>67</sup> The Metropolitan Transportation Authority (MTA) has committed to having 100% of its bus fleet be electric and has piloted 25 electric buses so far.<sup>8</sup>

DCAS has developed an educational brochure for fleets and the general public to assist efforts to promote cleaner and greener fleet options. In addition to the long-standing NYC Fleet Show at Flushing Meadows Corona Park each May, the City has launched annual partnership events with London, England and Quebec, Canada aimed at a common approach and leadership toward a sustainable and safe fleet.

Nationally, President Biden committed to an all zero emission federal fleet, including the vehicles used by the United States Postal Service.<sup>9</sup> At the state level, California has committed to 100% of light-duty vehicle sales will be zero emissions by 2035.<sup>10</sup> Fifteen states, including New York, also signed a memorandum of understanding committing to all medium and heavy-duty vehicle sales being zero emission by 2030.<sup>11</sup> A bill that recently passed in the state legislature would also put New York on track to phase out new fossil fuel vehicle sales by 2035.<sup>12</sup>

Internationally, many countries have committed to banning the sale of fossil fuel passenger vehicles, including Denmark and the Netherlands phasing out fossil fuel car sales by 2030; the UK by 2035; and Canada, France and Spain by 2040.<sup>13</sup>

Globally, in the commercial and public transit sectors there are more than 500,000 electric buses and nearly 400,000 electric delivery vans and trucks in operation. BloombergNEF forecasts that despite the downturn in vehicle sales due to COVID-19, electric vehicles will make-up 67% of the bus fleet as well as 50% of truck and van use for freight globally by 2040.<sup>14</sup>

<sup>6</sup> <https://www.panynj.gov/port-authority/en/blogs/sustainability/Port-Authoritys-Auto-Division-Hits-the-Gas-on-Clean-Vehicles.html>

<sup>7</sup> <https://www.panynj.gov/about/greening-vehicles-equipment.html>

<sup>8</sup> <http://www.mta.info/press-release/mta-headquarters/mta-releases-proposed-2020-2024-capital-plan-directing-historic-level>

<sup>9</sup> <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

<sup>10</sup> <https://www.gov.ca.gov/2020/09/23/governor-newsom-announces-california-will-phase-out-gasoline-powered-cars-drastically-reduce-demand-for-fossil-fuel-in-californias-fight-against-climate-change/>

<sup>11</sup> <https://ww2.arb.ca.gov/news/15-states-and-district-columbia-join-forces-accelerate-bus-and-truck-electrification>

<sup>12</sup> <https://www.nysenate.gov/newsroom/press-releases/pete-harckham/legislature-approves-harckham-engebright-bill-zero-emissions>

<sup>13</sup> <https://theicct.org/blog/staff/global-ice-phaseout-nov2020>

<sup>14</sup> <https://bnef.turtl.co/story/evo-2020/?teaser=yes>

BloombergNEF also forecasts that China will continue to be the world's leading market for electric vehicle sales until the 2040s.<sup>15</sup> Shenzhen, China has the world's first fully-electrified bus fleet and has nearly 62,000 electric trucks deployed. Guangzhou, China has more than 11,000 electric buses. Robust national regulation and incentives in China support these rapid electrification targets.<sup>16</sup>

Many European countries also bolster impressive electric vehicle adoption targets. Norway has the largest electric market share globally, with 54% of vehicles sold in 2020 being electric.<sup>17</sup> At the municipal level, European cities continue to rapidly electrify public fleets. Bern, Ghent, Gothenburg and Marseille are all working towards electrifying their municipal buses.<sup>18</sup> Four cities in Switzerland (Lausanne, Murten, Neuchatel and Thun) have deployed electric collection trucks.<sup>19</sup>

Private sector leadership in fleet electrification has also grown significantly. Amazon committed to purchasing 100,000 fully-electric delivery vehicles from Rivian.<sup>20</sup> Ikea plans on electrifying its last mile deliveries in New York by May 2021.<sup>21</sup> Through a pilot administered by DOT, over 350 pedal-assist cargo bikes are being used for last mile deliveries in New York City.<sup>22</sup>

<sup>15</sup> <https://about.bnef.com/electric-vehicle-outlook/>

<sup>16</sup> [https://theicct.org/sites/default/files/publications/EV\\_Capitals\\_2018\\_20191121.pdf](https://theicct.org/sites/default/files/publications/EV_Capitals_2018_20191121.pdf)

<sup>17</sup> <https://electrek.co/2021/01/07/all-electric-cars-market-share-norway-2020/#:~:text=While%20EV%20sales%20are%20globally%20representing%20about%203%25.new%20cars%20sold%20in%202020%20being%20all-electric%20%28BEV%29.>

<sup>18</sup> <https://theicct.org/blog/staff/european-cities-ev-sales-ideas-dec2020>

<sup>19</sup> [http://www.ieahev.org/assets/1/7/Report2019\\_Switzerland.pdf](http://www.ieahev.org/assets/1/7/Report2019_Switzerland.pdf)

<sup>20</sup> <https://press.aboutamazon.com/news-releases/news-release-details/amazon-co-founds-climate-pledge-setting-goal-meet-paris>

<sup>21</sup> <https://www.ikea.com/us/en/this-is-ikea/newsroom/ikea-u-s-to-convert-its-new-york-last-mile-delivery-fleet-to-electric-vehicles-by-may-2021-pube101cc30>

<sup>22</sup> <https://www1.nyc.gov/office-of-the-mayor/news/594-19/mayor-de-blasio-commercial-cargo-bike-program-reduce-delivery-congestion>

## Conclusion

New York City's fleet is a leader in sustainable procurement and efficient vehicle use. As the largest sustainable municipal fleet in the United States, the City's fleet has the leverage to influence the market and make carbon neutral operations not only a reality, but a benchmark for other cities, states, and businesses to look toward as a model. As per the Climate Group's Fleet First report issued in July 2021, fleets worldwide account for two thirds of transportation emissions. The City's on-road fleet makes up 2% of citywide on-road transportation emissions in New York City. While the City of New York's vehicle fleet's environmental footprint is small, its example can loom large. The City operates over 160 types of vehicles in extremely demanding and critical roles. The example and model of the City of New York's efforts in fleet electrification, efficiency, and biofuels can play a critical role in leading the way to reducing transportation emissions in New York City and beyond. As the impacts of a changing climate continue to proliferate globally, local action to mitigate its impact must continue to urgently reduce emissions in all sectors.

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