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U.S. Postal Service Fleet Modernization

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SUMMARY

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U.S. Postal Service Fleet Modernization

The United States Postal Service (USPS) is the federal agency responsible for providing reliable, affordable, universal mail delivery across the United States. One critical element of USPS's operations is its vehicle fleet, which had more than 235,000 vehicles in FY2022, including specialized local delivery trucks, passenger cars, and tractor-trailers. In FY2022, fuel consumption was 221 million gallons of gasoline equivalent, with gasoline or diesel making up 99%. USPS fleet greenhouse gas emissions (GHGs) made up 70% of overall GHGs for federal fleet vehicles in FY2022. Modernization of the USPS fleet is of interest to many in Congress, with several bills introduced and hearings held in recent Congresses regarding modernization of USPS's fleet.

In 2015, USPS began a multiyear process to design and purchase Next Generation Delivery Vehicles (NGDVs)—a new class of right-hand drive delivery vehicles—to replace its aging fleet of Long-Life Vehicles (LLVs). NGDVs could be produced with either a battery-electric or internal combustion engine drivetrain. USPS awarded a contract to Oshkosh Defense in February 2021 to deliver 50,000 to 165,000 NGDVs over 10 years. Initially, USPS did not specify how many would be battery-electric. USPS later released plans to acquire 10% battery-electric NGDVs and supported this decision through the Environmental Impact Statement process. According to USPS's 2021 Final Environmental Impact Statement, the initial acquisition plan for 10% battery-electric NGDVs with 90% internal combustion engine NGDVs would reduce annual fuel consumption by 25 million gallons of gasoline, and reduce greenhouse gas emissions by 290,000 metric tons of carbon dioxide equivalent (CO_2e). Following congressional hearings to discuss the initial plan, Congress appropriated $3 billion to USPS to assist with fleet modernization in the law commonly referred to as the Inflation Reduction Act (IRA; P.L. 117-169, enacted in August 2022). By the end of 2022, USPS had committed to acquiring at least 60,000 NGDVs, 50% of which would be battery-electric. Additionally, USPS announced plans to purchase 68,000 commercial-off-the-shelf vehicles (COTS)—including 30,000 right-hand drive vehicles—to add to or replace delivery and collection vehicles while waiting on NGDV production. The intended BEV share for the overall vehicle acquisition is 40%. As a federal agency, USPS is subject to a number of federal requirements and goals around fleet acquisitions, fuel efficiency, fuel consumption, and greenhouse gas emissions. Modernization of the USPS fleet may help the agency reduce fuel consumption, increase fuel efficiency, reduce greenhouse gas emissions, and meet federal requirements and goals.

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Introduction

The United States Postal Service (USPS) is the independent federal agency responsible for providing reliable, affordable, universal mail delivery across the United States. In FY2022, USPS handled more than 127 million pieces of mail, including letter mail, packages, periodicals, marketing mail, and international mail. USPS is primarily self-funded by revenue—roughly $77 billion in FY2021—from the sale of postal products and services, with Congress providing an annual appropriation—roughly $5 million in FY2021—as reimbursement for free mailing services provided to the blind and certain overseas voters.[1] Congress has also provided supplemental funding for expenses such as pandemic-related operating expenses in 2020 ($10 billion) and fleet modernization in 2022 ($3 billion).[2]

A critical element of USPS's operations is its vehicle fleet, which had 236,532 vehicles in FY2022. The majority of the fleet consists of delivery and collections vehicles, including 140,664 specialized local delivery trucks called Long-Life Vehicles (LLVs; see **Figure 1**, left panel).[3] LLVs were designed with right-hand drive for the specific purpose of mail delivery on city and rural routes. The design facilitates access to mailboxes without the need to exit the delivery truck, while also allowing the driver to exit and enter on the curb side. In 2015, USPS announced a multiyear acquisition strategy to replace its LLVs—the last of which was acquired in 1994[4]—with a newly designed vehicle called the Next Generation Delivery Vehicle (NGDV; see **Figure 1**, right panel). USPS design specifications listed a number of desired improvements based on observations operating LLVs, largely related to the following:[5]

- mitigating maintenance costs;
- addressing safety concerns due to vehicle fires and the general age of LLVs;
- accommodating shifts in mail mix (i.e., reduced letter mail volume and increased package volume); and
- incorporating additional features, such as heating and cooling.

Since the release of USPS's initial specifications, the agency has identified the process of modernizing the LLV fleet as an opportunity to incorporate technology to reduce fleet greenhouse gas (GHG) emissions,[6] which may also contribute to reducing fuel consumption, among other federal goals that USPS is subject to as a federal agency. These aspects of fleet modernization are of particular interest to Congress.

[1] For additional information about USPS governance and operation, see CRS Report R44603, *Reforming the U.S. Postal Service: Background and Issues for Congress*, by Michelle D. Christensen.

[2] Coronavirus Aid, Relief, and Economic Security (CARES) Act (P.L. 116-136), Div. A, §6001, as amended by P.L. 116-260, Div. N, §801. P.L. 117-69 (the law commonly referred to as the Inflation Reduction Act or "IRA"), §70002.

[3] Vehicles are reported "in actual units indicated, unaudited"; USPS, *FY2022 Annual Report to Congress*, p. 29, https://about.usps.com/what/financials/annual-reports/fy2022.pdf. LLVs were most recently reported at the end of FY2019. USPS, Office of the Inspector General (OIG), *Delivery Vehicle Acquisition Strategy*, Report Number 19-002-R20, August 12, 2020, p. 4, https://www.uspsoig.gov/sites/default/files/reports/2023-01/19-002-R20.pdf.

[4] USPS, *Delivery Vehicle Acquisition Strategy*, p. 4.

[5] USPS, *United States Postal Service Specification: Vehicle, Carrier Route, Right-Hand Drive* [draft], January 20, 2015, https://sam.gov/opp/27b8b02f57923cf9f3f51f0563cab1bc/view.

[6] USPS, "USPS Position on Next Generation Delivery Vehicles," accessed December 22, 2022, https://about.usps.com/news/statements/011516.htm.

Figure 1. Long-Life Vehicle (LLV) and Next Generation Delivery Vehicle (NGDV)

Source: U.S. Postal Service, Office of the Inspector General, *Delivery Vehicle Acquisition Strategy*, April 12, 2020, p. 15, https://www.uspsoig.gov/sites/default/files/reports/2023-01/19-002-R20.pdf.

In 2021, USPS selected a supplier, made several announcements, and took multiple actions, including the following:

- awarding a 10-year contract to Oshkosh Defense to design and assemble 50,000 to 165,000 NGDVs;[7]
- announcing that 10% of NGDVs would be battery-electric vehicles (BEVs)[8];
- publishing a final Environmental Impact Statement (EIS) defending the selected share of BEVs;[9] and
- purchasing an additional 34,500 vehicles—commercial-off-the-shelf vehicles (COTS)—for more immediate replacement of LLVs and other delivery and collections vehicles, and increasing the overall share of BEVs to approximately 50% across NGDVs and COTS.[10]

In 2022, USPS placed its initial order for 50,000 NGDVs, which included approximately 20% BEVs.[11]

In the 117th Congress, lawmakers introduced several bills concerning the modernization of the USPS fleet.[12] In general, the bills aimed to increase the zero-emission vehicle (ZEV; e.g., BEV or fuel cell electric vehicle) share of vehicle acquisitions, phase out non-ZEV medium- and heavy-duty vehicles, and mandate climate control units. Congress also held hearings to discuss fleet

[7] USPS, "U.S. Postal Service Awards Contract to Launch Multi-Billion-Dollar Modernization of Postal Delivery Vehicle Fleet," February 23, 2021, https://about.usps.com/newsroom/national-releases/2021/0223-multi-billion-dollar-modernization-of-postal-delivery-vehicle-fleet.htm.

[8] U.S. Congress, House Committee on Oversight and Reform, *Legislative Proposals to Put the Postal Service on Sustainable Financial Footing*, 117th Cong., 1st sess., February 24, 2021.

[9] USPS, *Final Environmental Impact Statement for Purchase of Next Generation Delivery Vehicles*, December 2021, https://uspsngdveis.com/documents/USPS+NGDV+FEIS_Dec+2021.pdf.

[10] USPS, "USPS Intends to Deploy Over 66,000 Electric Vehicles by 2028, Making One of the Largest Electric Vehicle Fleets in the Nation," December 20, 2022, https://about.usps.com/newsroom/national-releases/2022/1220-usps-intends-to-deploy-over-66000-electric-vehicles-by-2028.htm.

[11] Oshkosh Defense, "Oshkosh Defense Receives First Order for Next Generation Delivery Vehicle Fleet," March 24, 2022, https://oshkoshdefense.com/oshkosh-defense-receives-first-order-for-next-generation-delivery-vehicle-fleet/.

[12] The Postal Vehicle Modernization Act (H.R. 1636), Postal Service Electric Fleet Authorization Act of 2021 (H.R. 3521), Green Postal Service Fleet Act of 2022 (H.R. 7018), Ensuring an Accurate Postal Fleet Electrification Act (H.R. 7682), and Peggy Frank Memorial Act (H.R. 8376).

modernization—including questioning USPS about considering larger shares of ZEVs—and statements made in USPS's EIS regarding the proposed shares of ZEVs in the new fleet.[13] Subsequently, Congress appropriated $3 billion to USPS in the law commonly referred to as the Inflation Reduction Act (IRA, P.L. 117-169), enacted in August 2022. Of these funds, Congress directed $1.29 billion to USPS for the purchase of ZEVs and $1.71 billion for the purchase, design, and installation of related infrastructure at USPS facilities.[14]

This report explores USPS efforts to modernize its delivery and collections fleet, including challenges and policy considerations, following an overview of the fleet's vehicles and fuel consumption, and a discussion of federal requirements and standards applicable to USPS.

Overview of the USPS Fleet

USPS employs the largest federal vehicle fleet (39% of the overall domestic federal fleet) and one of the largest fleets in the world,[15] with 236,532 vehicles carrying out its mission and duties in FY2022.[16] As seen in **Figure 2**, delivery and collection vehicles made up the largest share (91%, 216,456 vehicles). The most recent data available of those delivery and collection vehicles, the largest share comprised LLVs (69% at the end of FY2019).[17] LLVs were designed with right-hand drive, specifically for mail delivery and collection on city and rural routes. Built with an expected service life of 24 years, ages for existing LLVs ranged from 25 to 32 years old in FY2019. USPS attributes increasing maintenance costs—$5,007 per vehicle in FY2019—to these aging vehicles.[18] The rest of the overall fleet consisted of various other vehicles used for other purposes, such as mail transportation (e.g., for transporting mail between processing facilities) and various administrative services.

[13] U.S. Congress, *Legislative Proposals to Put the Postal Service on Sustainable Financial Footing*; and U.S. Congress, House Committee on Oversight and Reform, *It's Electric: Developing the Postal Service Fleet of the Future*, 117th Cong., 2nd sess., April 5, 2022.

[14] For more information, see CRS Insight IN12003, *Inflation Reduction Act of 2022: Incentives for Clean Transportation*, by Melissa N. Diaz.

[15] General Services Administration (GSA), *FY2022 Federal Fleet Open Data Set*, Table 2-3, "Domestic and Foreign Inventory." Total domestic inventory was 617,575 and USPS inventory was 241,054.

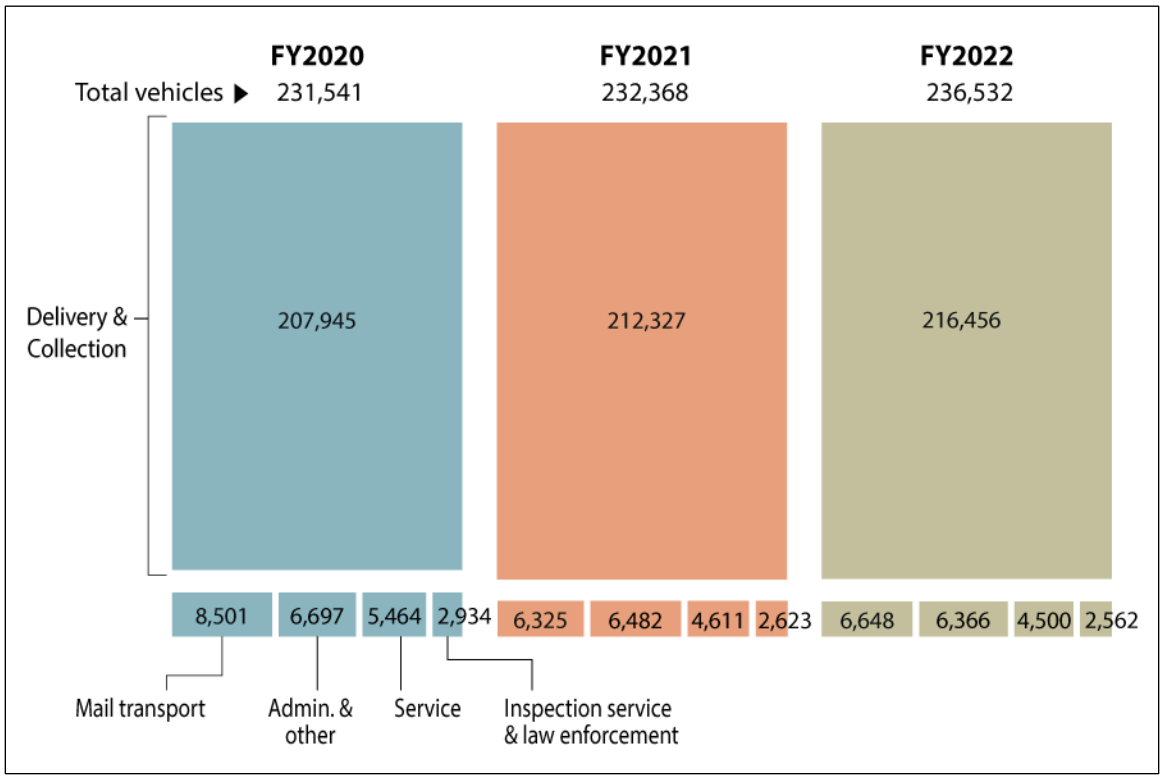
[16] Vehicles are reported "in actual units indicated, unaudited." *FY2022 Annual Report to Congress*, p. 29.

[17] As of September 30, 2019. USPS, *Delivery Vehicle Acquisition Strategy*, p. 4.

[18] Ibid., p. 5.

Figure 2. United States Postal Service (USPS) Vehicle Fleet

236,532 total vehicles in FY2022



Source: United States Postal Service (USPS), *FY2022 Annual Report to Congress*, p. 29, https://about.usps.com/what/financials/annual-reports/fy2022.pdf.

Notes: Data according to USPS, in actual units indicated, unaudited. Some variations exist between USPS data and General Services Administration fleet data, which reports 241,054 vehicles in FY2022.

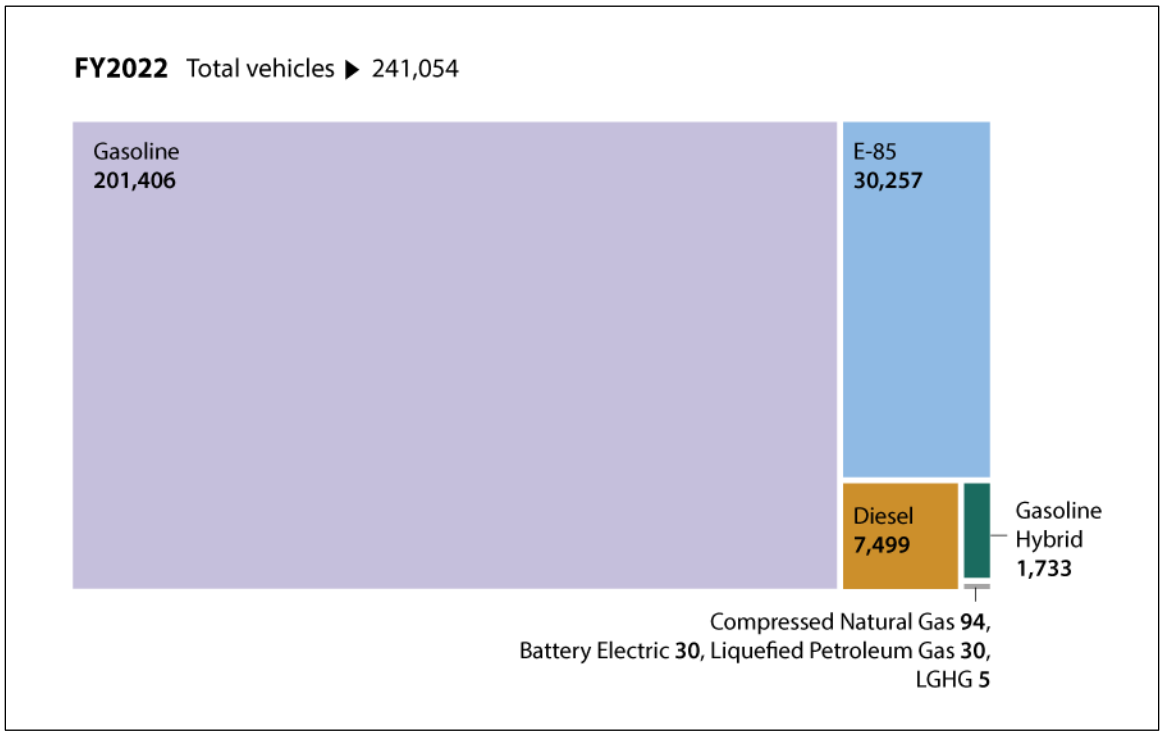
As seen in **Figure 3**, when broken down by fuel type, gasoline- and diesel-powered vehicles made up 87% of the overall fleet in FY2022.[19] The majority of the remainder of the fleet consisted primarily of E85 vehicles (dual-fuel vehicles that are capable of running on a gasoline or a blend of gasoline with up to 85% ethanol by volume). Non-plug-in hybrid-electric vehicles, BEVs, low greenhouse gas emitting (LGHG) vehicles, compressed natural gas (CNG) vehicles, and liquefied petroleum gas (LPG) vehicles made up less than 1% of the overall fleet.[20]

[19] GSA reported a total of 241,054 vehicles in the USPS fleet for FY2022. GSA, *FY2022 Federal Fleet*, Table 5-3, "Vehicle Inventory by Fuel Type." LGHG vehicles may be gasoline- or diesel-powered; the USPS fleet included gasoline but not diesel LGHG vehicles. Additionally, the USPS fleet did not include the following vehicle categories: diesel hybrid vehicles, gasoline or diesel plug-in hybrid-electric vehicles, hydrogen fuel cell vehicles, low-speed electric vehicles, liquefied natural gas vehicles.

[20] LGHG vehicles are defined by the Environmental Protection Agency (EPA) based on specific GHG levels measured in grams of carbon dioxide per mile; EPA, "Federal Fleets Using Low-Greenhouse Gas Emitting Vehicles," updated November 10, 2022, https://www.epa.gov/regulations-emissions-vehicles-and-engines/federal-fleets-using-low-greenhouse-gas-emitting#define.

Figure 3. United States Postal Service (USPS) Vehicles by Fuel Type

241,054 total vehicles in FY2022



Source: General Services Administration (GSA), *FY2022 Federal Fleet Open Data Set*, Table 5-3, "Vehicle Inventory by Fuel Type."

Notes: LGHG = low greenhouse gas emitting vehicles. LGHGs in the USPS fleet are gasoline-powered, though LGHGs may also be diesel-powered. GSA reports on several other vehicle types that are not in the USPS fleet: diesel hybrid-electric vehicles, gasoline and diesel plug-in hybrid-electric vehicles, hydrogen fuel cell vehicles, low-speed electric vehicles, and liquefied natural gas vehicles.

Fuel Consumption and Greenhouse Gas Emissions

The USPS fleet accounted for the largest share (58%) of overall federal fleet fuel consumption in FY2022, followed by the Departments of Defense (15%) and Justice (6%).[21] For USPS, more than 99% of the 221 million gallons of gasoline equivalent (GGE) consumed was gasoline (189 million GGE) or diesel (31 million GGE).[22] Alternative fuels made up less than 1% of fuel consumption (summarized in **Table 1**). These fuels included E85, biodiesel (B20, a blend of diesel with 20% biodiesel by volume), LPG, CNG, and electricity.

Table 1. United States Postal Service (USPS) Fleet Alternative Fuel Consumption

895,665 gallons of gasoline equivalent (GGE), FY2022

	Alternative Fuels Consumed (GGE)	Share of USPS Flee Alternative Fuel Consumption
Biodiesel (B20)	632,441	71%

[21] GSA, *FY2022 Federal Fleet*, Table 5-1, "Worldwide Fuel Consumption." Department of Defense data includes nontactical vehicles as reported to GSA and does not include tactical vehicles.

[22] Ibid. Fuel consumption was reported in GGE.

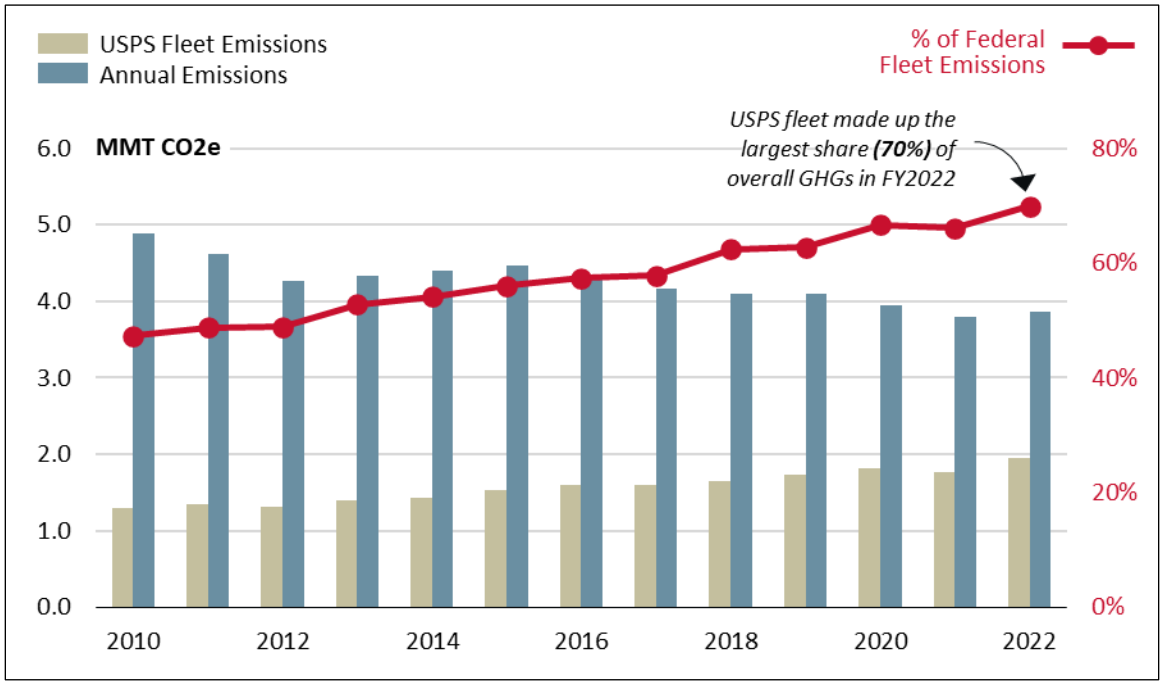
	Alternative Fuels Consumed (GGE)	Share of USPS Flee Alternative Fuel Consumption
Ethanol (E85)	254,098	28%
Compressed Natural Gas (CNG)	8,644	1%
Liquefied Petroleum Gas (LPLG)	409	< 1%
Electricity	73	< 1%

Source: General Services Administration, *FY2022 Federal Fleet Open Data Set*, Table 5-1, "Worldwide Fuel Consumption."

Emissions for the USPS fleet made up the largest share (70%) of overall GHGs for federal fleets in FY2022, followed by the Departments of Defense (13%) and Agriculture (5%).[23] GHGs for the USPS fleet have been on the rise since 2008, increasing by 46.4% from 1.34 million metric tons of carbon dioxide equivalent (CO_2e) to 1.96 million metric tons of CO_2e in 2022 (see **Figure 4**).

Figure 4. USPS Fleet Greenhouse Gas Emissions

Emissions in MMT CO_2e and share of federal fleet emissions



Source: Department of Energy (DOE), Office of Energy Efficiency & Renewable Energy (EERE), "E-4 Scope 1 & 2 GHG [Greenhouse Gas] Emissions from Standard Operations (Targeted Emissions) by Sector and Category, FY 2008 through FY 2022 (Metric Tons of Carbon Dioxide Equivalent)," https://ctsedwweb.ee.doe.gov/Annual/Report/Scope1And2GHGEmissionsByOperationsTypeTargetNonTargetSectorAndCategory.aspx.

Notes: GHGs reported by EERE in million metric tons of carbon dioxide equivalent (MMT CO_2e). United States Postal Service (USPS) fleet emissions are displayed as a share of overall federal fleet emissions.

[23] DOE, EERE, "E-3 Scope 1 & 2 GHG Emissions from Standard Operations by Category, FY 2008 and FY 2022 (Metric Tons of Carbon Dioxide Equivalent)," https://ctsedwweb.ee.doe.gov/Annual/Report/Scope1And2GHGEmissionsSubjectToReductionTargetsByCategoryComparedToFY2008.aspx. GHGs from fleets reported through FAST; includes nontactical vehicles for Department of Defense. Including GHGs from all vehicles and equipment would result in the following shares: 49% for USPS, 30% for Department of Defense, and 4% for Department of Agriculture.

Fuel efficiency for new vehicles presents an opportunity to potentially reduce fuel consumption and GHGs for the fleet. LLV fuel efficiency is rated at 17 miles per gallon (mpg), though it has been observed to be 8.6 mpg.[24] While official mileage ratings are useful for comparing vehicles, actual mileage will depend on real-world driving conditions.[25] As of 2021, USPS reported a baseline of 14.7 mpg for NGDVs powered by gasoline, which decreased to 8.6 mpg when operating onboard air conditioning—LLVs do not have air conditioning, though it is expected to be a standard feature for NGDVs.[26] Incorporating more battery-electric NGDVs may help USPS reduce fuel consumption and GHGs emissions, and potentially help the agency meet federal requirements and goals for fleets.

Fleet Management Requirements and Goals

As a federal agency, USPS is subject to a number of federal requirements and goals that govern energy management and the management and operation of government vehicle fleets, including fuel efficiency, GHGs, fuel consumption, and fleet acquisitions (see **Table 2**).[27] The Office of Budget and Management (OMB) publishes scorecards and performance on energy efficiency and sustainability goals annually.[28] In FY2021, USPS missed the benchmarks for two fueling metrics:

- alternative fuel consumption was 51% less than the FY2005 baseline (agencies are required to increase alternative fuels by 10% relative to the baseline);[29] and
- petroleum fuel consumption was 38% more than the FY2005 baseline (agencies are required to reduce petroleum fuel by 20%), though it was 2.2% less than FY2020.

Table 2. Selected Federal Fleet Management Requirements

Relevant to the United States Postal Service (USPS) fleet

Requirement	Statutory or Regulatory Authority
Vehicle Acquisition Requirements	
AFVs must make up 75% of all new federal light duty vehicle acquisitions (LLVs and NGDVs are classified as heavy duty).	Section 303 of the Energy Policy Act of 1992 (EPAct92; 42 U.S.C. §13212(b))
Agencies should not acquire new light- or medium-duty vehicles that are not LGHG vehicles.	Section 141 of the Energy Independence and Security Act of 2007 (EISA; 42 U.S.C. §13212(f)(2))

[24] FuelEconomy.gov, "1988 Grumman Allied Industries LLV," accessed March 15, 2023, https://www.fueleconomy.gov/feg/bymodel/1988_Grumman_Allied_Industries_LLV.shtml; and USPS, *Final Environmental Impact Statement*, December 2021, p. G-2, Table G-1.

[25] FuelEconomy.gov, "Your Mileage Will Vary," accessed May 31, 2023, https://www.fueleconomy.gov/feg/why_differ.shtml.

[26] USPS, *Final Environmental Impact Statement*, December 2021, p. 3-2.

[27] Agencies are described in EPAct92 (see 42 U.S.C. §13212) and are extended to EPAct05 fleet requirements.

[28] OMB, "United States Postal Service: FY 2021 OMB Scorecard for Efficient Federal Operations/Management," https://www.sustainability.gov/pdfs/usps-scorecard-fy2021.pdf.

[29] 42 U.S.C. §6374. Alternative fuels include ethanol and other alcohols, blends of alcohols with gasoline or other fuels, natural gas, liquefied petroleum gas, hydrogen, coal-derived liquid fuels, fuels derived from biological materials, and electricity. In FY2005, USPS consumed 0.5 million GGE of alternative fuel and 144 million GGE of petroleum fuel. In FY2021, USPS consumed 0.2 million GGE of alternative fuel and 199 million GGE of petroleum fuel. Office of Sustainability, *Fleet Petroleum and Alternative Fuel*, figure, https://www.sustainability.gov/usps.html.

Requirement	Statutory or Regulatory Authority
Beginning in FY2027, ZEVs must make up all new federal light-duty vehicle acquisitions.	Executive Order (E.O.) 14057 Section 204
Energy and Fueling Requirements	
Alternative fuel consumption by federal fleets must increase by 10% (FY2005 baseline by end of FY2015).	Section 142 of EISA (42 U.S.C. §6374e(a)(2))
Petroleum fuel consumption must decrease by 20% (FY2005 baseline by end of FY2015).	Section 142 of EISA (42 U.S.C. §6374e(a)(2))
Dual-fueled vehicles (e.g., flex-fuel vehicles) must be operated on alternative fuels.	Section 701 of the Energy Policy Act of 2005 (EPAct05; 42 U.S.C. §6374(a)(3)(E))
Agency fleet refueling stations must have at least one renewable fuel pump.	Section 246 of EISA (42 U.S.C. §17053(a)(c))
Refueling sites or stations providing alternative fuels to agencies must be publicly accessible.	Section 304 of EPAct92 (42 U.S.C. §13213(a)); Section 701 of EPAct05 (42 U.S.C. §6374(c))
Electricity from renewable energy sources must make up 7.5% of total annual electricity consumption.	Section 203 of EPAct05 (42 U.S.C. §15852(a))
Planning and Reporting Requirements	
Agencies must develop plans to achieve petroleum reduction and alternative fuel consumption targets (e.g., Strategic Sustainability Performance Plan, Federal Fleet Fuel Consumption Plans).	Section 142 of EISA (42 U.S.C. §6374e(b))
Agencies must report annually on alternative fuel purchasing requirements (i.e., Federal Fleet Compliance Report).	Section 705 of EPAct05 (42 U.S.C. §13218(b))
Agencies must annually submit a strategic plan with annual targets for transforming agency fleets to ZEVs.	E.O. 14057 Section 204

Source: Department of Energy (DOE), Office Energy Efficiency and Renewable Energy (EERE), "Fleet Management," accessed September 29, 2023, https://www7.eere.energy.gov/femp/requirements/requirements_filtering/Fleet%20Management. DOE, EERE, "Renewable and Carbon Free Energy and Electricity," accessed September 29, 2023, https://www7.eere.energy.gov/femp/requirements/requirements_filtering/Renewable%20and%20Carbon%20Free%20Energy%20and%20Electricity.

Notes: AFVs = alternative fuel vehicles. LGHG vehicles = low greenhouse gas emitting vehicles. LLVs = Long-Life Vehicles. NGDVs = Next Generation Delivery Vehicles. ZEVs = zero-emission vehicles. Plug-in hybrid-electric vehicles may count toward ZEVs requirements due to the possibility to be operated solely on electricity. Exceptions exist in statute for certain requirements. This table does not reflect all fleet or energy related requirements.

Federal agencies, including USPS, must meet certain vehicle fleet acquisition goals. These include requiring LGHG vehicles for all new light- and medium-duty vehicle acquisitions, and requiring 75% alternative fuel vehicles for new light-duty vehicle acquisitions, though these requirements do not apply to LLVs and NGDVs, which are classified as heavy-duty vehicles.[30] For FY2021, OMB reported 0.9% AFVs for new USPS fleet acquisitions. Unlike these existing requirements, a new goal in Executive Order 14057 directs the federal government to transition to

[30] Alternative fuel vehicles include those powered by electricity, hydrogen, natural gas, propane, and biofuels, as well as hybrid vehicles that may also be powered in part by petroleum-based fuels. Federal fleets may be permitted to acquire a smaller percentage as long as the overall federal fleet meets the requirements (P.L. 102-486).

100% zero-emission vehicle acquisitions across vehicle classes by 2035.[31] Achieving such a goal may pose additional financial and logistical challenges for the USPS fleet.

The incorporation of increasing numbers of BEVs into the USPS fleet has the potential for dual impact on the agency's progress toward federal requirements and goals. Greater use of BEVs could contribute to a reduction in petroleum consumption. Also, a transition could contribute to an increase in overall electricity consumption, potentially necessitating greater electricity generation from renewable energy sources. In FY2021, USPS derived 4.5% of its annual electricity from renewable energy sources—the federal requirement is 7.5%.[32] Additionally, Executive Order 14057 directs the federal government to transition to 100% "carbon pollution-free energy" by 2030.[33] Despite the potential financial and logistical challenges, depending on the electric generation mix, a shift toward BEVs may contribute to progress in increasing renewable energy sources, increasing alternative fuel consumption, decreasing overall fuel consumption, and USPS's own goals for carbon pollution-free electricity and reduced GHGs emissions from the fleet and agency as a whole.[34]

USPS Fleet Modernization and Vehicle Replacement

Since 2015, USPS has engaged in activities to modernize its delivery and collection fleet, specifically to replace its unique right-hand drive LLVs. The multiyear acquisition strategy includes the design and production of a new class of right-hand drive delivery vehicles—NGDVs—to replace LLVs. Following some delays in awarding the contract, in February 2021, USPS awarded a 10-year contract to Oshkosh Defense to design and assemble 50,000 to 165,000 NGDVs, with the first deployment of NGDVs potentially as soon as 2023.[35] Design requirements for NGDVs included improved fuel efficiency, space adjustments for the growing volume of packages, and additional technological features.[36] In 2022, USPS announced plans to purchase 34,500 COTS vehicles, to include as many BEVs as available and compatible, though any of the special right-hand drive vehicles are likely to be internal combustion engine vehicles (ICEVs).[37] This contract is of interest to Congress and received scrutiny from some Members for the large share of ICEVs among NGDVs, which was discussed in congressional hearings.[38]

[31] Executive Order 14057, "Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability," 86 *Federal Register* 70935, December 13, 2021.

[32] According to EPAct05 (P.L. 109-58), of the total electric energy consumed by the federal government, 7.5% is required to come from renewable energy sources (see 42 U.S.C. §15852). The Energy Act of 2020 (Division Z of P.L. 116-260) amended the definition of "renewable energy" to include thermal energy such as that produced from geothermal resources. In FY2021, USPS procured 4.5% of electricity generated from renewable energy sources. See also 42 U.S.C. §15852.

[33] Executive Order 14057.

[34] USPS, *Sustainability Implementation Plan*, October 2022, https://www.sustainability.gov/usps.html.

[35] USPS, "U.S. Postal Service Awards Contract to Launch Multi-Billion-Dollar Modernization of Postal Delivery Vehicle Fleet," February 23, 2021. USPS, OIG, *Delivery Vehicle Acquisition Strategy*.

[36] USPS, "USPS Intends to Deploy Over 66,000 Electric Vehicles by 2028, Making One of the Largest Electric Vehicle Fleets in the Nation," December 20, 2022.

[37] Ibid.; and USPS, "USPS Statement on Next Generation Delivery Vehicles Prototype Selection and Request for Proposal for Commercial Off-the-Shelf Delivery Vehicles," January 2015, https://about.usps.com/news/statements/091616.htm.

[38] U.S. Congress, *Legislative Proposals to Put the Postal Service on Sustainable Financial Footing*; and U.S. Congress, *It's Electric: Developing the Postal Service Fleet of the Future*.

Environmental Analysis

In December 2021, USPS completed an EIS for its vehicle acquisition plan, in accordance with the National Environmental Policy Act, as a major federal action that has been determined to have a significant effect on the quality of the human environment.[39] The analysis compared the expected environmental impacts of four acquisition scenarios (aside from taking no action):

1. the USPS-proposed drivetrain mix of 10% battery-electric NGDVs and 90% internal combustion engine NGDVs;
2. 100% battery-electric NGDVs;
3. 100% internal combustion engine COTS vehicles (no NGDVs); and
4. 100% battery-electric COTS vehicles (no NGDVs).

Comparing the two NGDV scenarios, the analysis concluded that the 10% BEVs with 90% ICEVs scenario was preferred by USPS, in large part due to the cost. The total cost over 20 years for 75,000 NGDVs was estimated to be $2.3 billion more for 100% BEVs compared to the preferred 10% BEVs scenario.[40] However, the analysis also estimated for 165,000 NGDVs that the 100% BEVs scenario would reduce fuel consumption (not counting energy used for electricity generation) by 135 million gallons annually compared to 25 million gallons in the 10% BEVs scenario.[41] These reductions in fuel consumption would be associated with an estimated reduction in GHGs of 865,000 metric tons of CO_2e for the 100% BEV scenario compared to 290,000 metric tons of CO_2e for the 10% BEV scenario.[42]

The EIS received a number of responses from EPA, several states' attorneys general, and environmental groups.[43] These were followed by various USPS announcements regarding changes to the number and types of vehicles to be acquired. At the end of 2022, USPS had committed to acquiring at least 60,000 NGDVs, and increasing the share of battery-electric NGDVs from 10% to 50%.[44] Additionally, USPS announced $2.3 billion for an interim plan to acquire 68,000 COTS—including 30,000 right-hand drive vehicles—to add or replace delivery and collection vehicles while waiting on production of NGDVs.[45] The intended BEV share for the overall vehicle acquisition is 40%.[46]

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[39] USPS, *Final Environmental Impact Statement*, December 2021; and EPA, "National Environmental Policy Act Review Process," updated October 5, 2022, https://www.epa.gov/nepa/national-environmental-policy-act-review-process#EIS.

[40] Total costs included vehicle purchase, charging infrastructure, estimated fuel and utility costs, and maintenance, among other expenses. USPS, *Final Environmental Impact Statement*, December 2021, p. 3-1.

[41] The analysis did not attribute to BEVs the fuel or energy that would be used to generate the electricity necessary to charge. USPS, *Final Environmental Impact Statement*, December 2021, Table G-3, "Estimated Fuel Consumption Comparison of Existing 165,000 Delivery Vehicles and the Proposed Action ICE Hypothetical Maximum (90% ICE NGDV and 10% BEV [NGDV])."

[42] USPS, *Final Environmental Impact Statement*, December 2021, pp. 4-22 and 4-25.

[43] USPS, *Record of Decision and Record of Environmental Consideration, Next Generation Delivery Vehicle Acquisitions*, February 23, 2022, https://uspsngdveis.com/documents/USPS%20NGDV%20Acquisitions%20NEPA%20Record%20of%20Decision_2.23.22.pdf.

[44] USPS, *2022 Sustainability Implementation Plan*, October 2022, p. 2; and USPS, "USPS Intends to Deploy Over 66,000 Electric Vehicles by 2028, Making One of the Largest Electric Vehicle Fleets in the Nation," December 20, 2022.

[45] USPS, *Delivery Vehicle Acquisition Strategy*, p. 5.

[46] USPS, *2022 Sustainability Implementation Plan*, October 2022, p. 2.

Challenges and Opportunities for Fleet Modernization

The modernization of the USPS fleet presents a range of challenges and opportunities. As a primarily self-funded agency, USPS faces significant financial pressures. The plan to replace LLVs has necessitated the design and production of a new vehicle. This process has experienced a number of delays for replacing the vehicles that are among the oldest in the USPS fleet. USPS faces additional challenges with vehicle electrification, and with achieving a 100% ZEV fleet more broadly. The acquisition of BEVs also faces consideration alongside the costs of acquiring and installing related charging infrastructure.

As USPS incorporates BEVs, the agency may face increased electricity costs or peak demand fees, which may be mitigated through developing charging plans based on daily routes and charging needs.[47] Some types of electricity generation projects and energy storage projects that might support other sustainability goals, such as onsite electricity generation with battery energy storage systems or partnerships with utilities and local governments, may also help to reduce energy costs associated with the operation and administration of BEVs.

The manner in which USPS addresses these challenges presents an opportunity for USPS to become a leader in operating and managing large electric vehicle fleets. One of USPS's strategic areas of focus from its 10-year Delivery for America Plan (issued in March 2021) is to "modernize [the] delivery vehicle fleet, and with Congressional support, implement [an] electric fleet by 2035."[48]

Policy changes could also play a role in facilitating fleet modernization for USPS. For example, the federal government could offer additional financial support or offer technical assistance for USPS to recover certain costs through installation and operation of publicly accessible charging stations. Additionally, USPS could work with federal and state regulators to develop flexible emissions standards that account for the unique challenges and characteristics of the USPS fleet.

Additionally, policymakers and stakeholders may explore the extent to which USPS fleet modernization could benefit from a comprehensive and collaborative approach. Working with stakeholders across the federal government, state and local governments, and the private sector could help USPS identify and pursue innovative solutions to incorporate BEVs and other ZEVs, achieve federal and agency requirements and goals, and improve USPS's provision of the essential service of mail and package delivery across the country.

[47] For an example of federal planning for BEV charging, see DOE, Federal Energy Management Program (FEMP), "EVSE [Electric Vehicle Supply Equipment] Upgrades in NREL's [National Renewable Energy Laboratory's] Parking Garage Generate Financial Benefits," https://www.energy.gov/node/4378375.

[48] USPS, *FY2022 Annual Report to Congress*.

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