



U.S. DEPARTMENT OF  
**ENERGY**

# Alternative Fuel Use by Federal Dual Fueled Vehicles, Fiscal Year 2013

Report to Congress  
September 2015

United States Department of Energy  
Washington, DC 20585

## Message from the Assistant Secretary

Section 701 of the Energy Policy Act of 2005<sup>1</sup> requires Federal agencies to operate dual fueled vehicles on alternative fuel unless the Department of Energy (DOE) determines that a vehicle qualifies for a waiver from this requirement. For reference, dual fueled vehicles are those that, generally speaking, are capable of operating on alternative fuel and on gasoline or diesel. Alternative fuel<sup>2</sup> includes such fuels as E85, B100 biodiesel, natural gas, liquefied petroleum gas, electricity, and hydrogen.

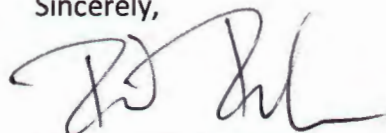
DOE is required to report to Congress on the extent to which the requirements of section 701 are being achieved by Federal motor vehicle fleets. This report provides information on the number of waivers granted by DOE and the alternative fuel consumed by Federal vehicles during fiscal year 2013.

This report is being provided to the following Members of Congress:

- **The Honorable Joseph R. Biden, Jr.**  
President of the Senate
- **The Honorable John A. Boehner**  
Speaker of the House of Representatives
- **The Honorable Fred Upton**  
Chairman, House Committee on Energy and Commerce
- **The Honorable Frank Pallone, Jr.**  
Ranking Member, House Committee on Energy and Commerce
- **The Honorable Lisa Murkowski**  
Chair, Senate Committee on Energy and Natural Resources
- **The Honorable Maria Cantwell**  
Ranking Member, Senate Committee on Energy and Natural Resources

If you have any questions or need additional information, please contact me or Mr. Brad Crowell, Assistant Secretary for Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,



Dr. David T. Danielson  
Office of Energy Efficiency and Renewable Energy

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<sup>1</sup> Pub. L. No 109-58, § 701 (Aug. 8, 2005) (codified at 42 U.S.C. § 6374(a)(3)(E)).

<sup>2</sup> See 42 U.S.C. § 6374(g)(2).

## Executive Summary

Section 701 of the Energy Policy Act of 2005<sup>3</sup> requires Federal agencies to operate dual fueled vehicles on alternative fuel unless the Department of Energy (DOE) determines that a vehicle qualifies for a waiver from this requirement. DOE grants waivers to dual fueled vehicles where alternative fuel is not reasonably available or where alternative fuel is unreasonably more expensive than gasoline.<sup>4</sup>

Federal motor vehicle fleets operated 148,269 dual fueled vehicles in fiscal year (FY) 2013. DOE granted waivers to 38 percent, or 56,894, of these vehicles, almost exclusively because alternative fuel was not reasonably available to the vehicles. The remaining 62 percent, or 91,735 dual fueled vehicles, were required by section 701 to operate on alternative fuel.

In FY 2013, Federal fleets consumed nearly 11 million gasoline gallon equivalents (GGE) of alternative fuel in non-waivered, dual fueled vehicles, and a total of 16.2 million GGE of alternative fuel in all vehicles (primarily dual fueled vehicles, dedicated vehicles that can operate only on alternative fuel, and diesel vehicles operating on biodiesel). The 16.2 million GGE of alternative fuel consumed by Federal vehicles represents a reduction in petroleum consumption of equal magnitude. Between FY 2005 and FY 2013, Federal fleets increased their alternative fuel consumption by 232 percent.<sup>5</sup>

Across the entire Federal fleet, an estimated 21 percent of the fuel used by non-waivered, dual fueled vehicles was alternative fuel in FY 2013.

DOE is taking multiple actions to help Federal fleets increase their utilization of alternative fuel. These actions include providing fleets with a Web-based fuel consumption dashboard; providing a Web-based tool for locating alternative fueling stations; encouraging retail development of additional alternative fueling stations by providing the locations of vehicles receiving waivers; and holding workshops to develop new alternative fueling infrastructure.

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<sup>3</sup> Pub. L. No 109-58, § 701 (Aug. 8, 2005) (codified at 42 U.S.C. § 6374(a)(3)(E)).

<sup>4</sup> See 42 U.S.C. § 6374(a)(3)(E)(i).

<sup>5</sup> E.O. 13423 requires agencies to increase fleet alternative fuel consumption 114.4 percent by FY 2013, relative to an FY 2005 baseline.



# **ALTERNATIVE FUEL USE BY FEDERAL DUAL FUELED VEHICLES, FISCAL YEAR 2013**

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## I. Findings

Section 701 of the Energy Policy Act of 2005<sup>6</sup> requires Federal agencies to operate dual fueled vehicles on alternative fuel unless the Department of Energy (DOE) determines that a vehicle qualifies for a waiver from this requirement. For reference, dual fueled vehicles are those that, generally speaking, are capable of operating on alternative fuel and on gasoline or diesel. Alternative fuel<sup>7</sup> includes such fuels as E85, B100 biodiesel, natural gas, liquefied petroleum gas, electricity, and hydrogen.

DOE is required to report to Congress on the extent to which the requirements of section 701 are being achieved by Federal motor vehicle fleets. This report provides information on the number of waivers granted by DOE and the alternative fuel consumed by Federal vehicles during fiscal year (FY) 2013.

DOE grants waivers to dual fueled vehicles located where alternative fuel is not reasonably available or where the alternative fuel is unreasonably more expensive than gasoline.<sup>8</sup> In FY 2013, Federal fleets operated 148,629 dual fueled vehicles subject to the requirements of section 701. DOE granted waivers to 38 percent, or 56,894, of these vehicles, almost exclusively because alternative fuel was not reasonably available to the vehicles. The remaining 62 percent, or 91,735 dual fueled vehicles, were required by section 701 to operate on alternative fuel.

In FY 2013, Federal fleets consumed nearly 11 million gasoline gallon equivalents (GGE) of alternative fuel in non-waivered, dual fueled vehicles, and a total of 16.2 million GGE of alternative fuel in all vehicles (primarily dual fueled vehicles, dedicated vehicles that can operate only on alternative fuel, and diesel vehicles operating on biodiesel). The 16.2 million GGE of alternative fuel consumed by Federal vehicles represents a reduction in petroleum consumption of equal magnitude. Between FY 2005 and FY 2013, Federal fleets increased their alternative fuel consumption by 232 percent.<sup>9</sup>

Across the entire Federal fleet, an estimated 21 percent of the fuel used by non-waivered, dual fueled vehicles was alternative fuel in FY 2013. Each agency's individual performance for FY 2013 is shown in Table A.

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<sup>6</sup> Pub. L. No. 109-58, § 701 (Aug. 8, 2005) (codified at 42 U.S.C. § 6374(a)(3)(E)).

<sup>7</sup> See 42 U.S.C. § 6374(g)(2).

<sup>8</sup> See 42 U.S.C. § 6374(a)(3)(E)(i). Also note that for FY 2013, certain types of dual fueled vehicles (e.g., law enforcement motor vehicles, emergency response motor vehicles, and military tactical vehicles) were considered exempt from the statutory requirement and were not accounted for in the statistics stated in this report.

<sup>9</sup> E.O. 13423 requires agencies to increase fleet alternative fuel consumption 114.4 percent by FY 2013, relative to an FY 2005 baseline.

Increasing the rate of alternative fuel utilization in non-waivered vehicles is the Federal fleet's best, most immediate opportunity for reducing petroleum consumption (i.e., it does not require new vehicles or new alternative fuel infrastructure).

In FY 2013, DOE's Federal Energy Management Program took steps toward realizing this potential by continuing to provide agencies with a Web-based dashboard that utilizes fuel transaction data to provide monthly tracking of alternative fuel consumption by each major organization within an agency.<sup>10</sup> The dashboard also tracks individual vehicles' missed opportunities to use alternative fuel instead of petroleum when the alternative fuel was available nearby. Sixteen agencies are currently using the dashboard to increase their alternative fuel utilization and reduce petroleum consumption.

DOE also provides the on-line Alternative Fueling Station Locator, which maps the location of every alternative fueling station across the country, enabling fleet managers and vehicle operators to find alternative fueling stations nearby.<sup>11</sup>

In addition to increasing alternative fuel utilization in the 62 percent of dual fueled vehicles that do not receive waivers, the Federal fleet could increase its alternative fuel consumption significantly if the other 38 percent of dual fueled vehicles that currently receive waivers could access alternative fuel. It is estimated that this could amount to an additional 32 million GGE of alternative fuel consumption.

To encourage the development of alternative fuel infrastructure by retail fueling stations in proximity to Federal fleets, the Federal Energy Management Program publishes on its website the locations of all vehicles currently receiving waivers.<sup>12</sup> This helps alternative fuel providers and retail fueling station owners make informed decisions about the business case for installing alternative fuel infrastructure in proximity to waived vehicles, eliminating the need for waivers.

DOE has used this waiver information in conjunction with holding sixteen workshops in major metropolitan areas over the past four years. These workshops bring together fleet operators, fuel providers, and fuel retailers to develop solutions to the challenges faced by fleets and fuel retailers regarding development of alternative fuel infrastructure. Federal fleets can serve an important role as anchor fleets, providing the critical mass of demand for alternative fuel that can make the business case for fuel retailers to install new infrastructure. The new infrastructure resulting from these workshops also benefits the public, enabling more people to adopt alternative fuel vehicles and fuel them at the new alternative fueling stations.

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<sup>10</sup> See Fleet Sustainability Dashboard, or FleetDASH, at <https://federalfleets.energy.gov/FleetDASH/>.

<sup>11</sup> See <http://www.afdc.energy.gov/locator/stations/>.

<sup>12</sup> See [http://federalfleets.energy.gov/performance\\_data#wavers](http://federalfleets.energy.gov/performance_data#wavers).

## II. Table A: Fiscal Year 2013 Federal Fleet Alternative Fuel Consumption in Non-Waivered, Dual Fueled Vehicles

Federal Agency	Dual Fueled Vehicles Subject to the Requirements of Section 701 of EPA Act 2005 <sup>b</sup>	Waivers Granted	Non-Waivered, Dual Fueled Vehicles	Alternative Fuel Consumption in Non-Waivered, Dual Fueled Vehicles (GGE) <sup>c,d</sup>	Annual Alternative Fuel Consumption per Non-Waivered, Dual Fueled Vehicle (GGE)	Agency Average Annual Total Fuel Consumption per Vehicle (GGE)	Percentage Alternative Fuel Use in Non-Waivered, Dual Fueled Vehicles (%) <sup>e</sup>
	A	B	C = A - B	D	E = D / C	F	G = E / F
Corps of Engineers, Civil Works	3,482	1,901	1,581	29,212	18	614	3
Court Services and Offender Supervision Agency	13	13	0	See note e	See note e	176	See note e
Department of Agriculture	12,386	6,283	6,103	1,597,717	262	474	55
Department of Commerce	760	606	154	30,278	197	591	33
Department of Defense	51,079	18,087	32,992	4,362,746	132	456	29
Department of Education	54	0	54	925	17	565	3
Department of Energy	5,564	458	5,106	1,044,238	205	462	44
Department of Health and Human Services	1,838	339	1,499	77,570	52	354	15
Department of Homeland Security	6,902	2,210	4,692	158,071	34	675	5
Department of Housing and Urban Development	104	0	104	1,063	10	467	2
Department of Justice	444	37	407	7,389	18	388	5
Department of Labor	2,255	982	1,273	195,258	153	693	22
Department of State	265	71	194	18,418	95	463	21
Department of the Interior	6,748	3,557	3,191	745,739	234	546	43
Department of the Treasury	198	122	76	42,789	563	682	83
Department of Transportation	3,046	1,434	1,612	237,546	147	490	30
Department of Veterans Affairs	8,449	2,933	5,516	1,375,518	249	537	46
Environmental Protection Agency	359	166	193	43,701	226	466	49
General Services Administration	480	203	277	6,860	25	297	8
National Aeronautics and Space Administration	1,524	99	1,425	377,678	265	408	65
National Science Foundation	46	17	29	13,539	467	422	See note f
Nuclear Regulatory Commission	14	14	0	See note e	See note e	190	See note e
Office of Personnel Management	598	139	459	9,289	20	440	5
Smithsonian Institution	84	35	49	17,152	350	253	See note g
Social Security Administration	339	84	255	44,378	174	570	31
Tennessee Valley Authority	730	299	431	25,163	58	778	8
United States Postal Service	40,868	16,805	24,063	499,674	21	646	3
<b>Federal Government</b>	<b>148,629</b>	<b>56,894</b>	<b>91,735</b>	<b>10,961,911</b>	<b>119</b>	<b>563</b>	<b>21</b>

Data source: Agency-reported data in the Federal Automotive Statistical Tool (FAST).

<sup>a</sup> The percentage of time that an agency operates its non-waivered, dual fueled vehicles on alternative fuel (column G), is calculated by dividing the agency's average alternative fuel consumption per non-waivered, dual fueled vehicle (column E) by the agency's average total fuel consumption per vehicle (column F). An agency's average total fuel consumption per vehicle (column F) is used as a proxy for average total fuel consumption in non-waivered, dual fueled vehicles, because agencies do not report fuel consumption in dual fueled vehicles separately from fuel consumption in other vehicles. Column F is calculated by dividing consumption of all types of fuel for which dual fueled vehicles exist that could use those fuels (i.e., gasoline, E85, compressed natural gas (CNG), liquefied natural gas (LNG), and liquefied petroleum gas (LPG)) by the number of vehicles (both dual fueled and dedicated) that could use those fuels.

<sup>b</sup> Column A does not include certain types of dual fueled vehicles, including law enforcement motor vehicles, emergency response motor vehicles, and military tactical vehicles.

<sup>c</sup> GGE is a gasoline gallon equivalent, or the volume of fuel having the same energy content as a gallon of gasoline.

<sup>d</sup> Column D includes consumption of all types of alternative fuel for which dual fueled vehicles exist that could use those alternative fuels (i.e., E85, CNG, LNG, and LPG).

<sup>e</sup> Every dual fueled vehicle of the Court Services and Offender Supervision Agency and the Nuclear Regulatory Commission was granted a waiver by DOE, and therefore these agencies had no non-waivered, dual fueled vehicles and consumed no alternative fuel in non-waivered, dual fueled vehicles.

<sup>f</sup> The percentage alternative fuel use in non-waivered, dual fueled vehicles for the National Science Foundation is calculated to be over 100 percent (111 percent). This number is understood to be influenced by two non-waivered vehicles that reported consuming an unattainably high level of alternative fuel. Removing the fuel consumption of these two vehicles results in a revised estimate of 49-percent alternative fuel use in non-waivered, dual fueled vehicles.

<sup>g</sup> The percentage alternative fuel use in non-waivered, dual fueled vehicles for the Smithsonian Institution is calculated to be over 100 percent (139 percent). This number is understood to be impacted by the influence of two factors on the agency's average annual total fuel consumption per vehicle (column F). First, dual fueled vehicles comprise a small share of the agency's domestic fleet (84 out of 438 total vehicles), causing the average fuel consumption per vehicle to be weighted heavily toward the fuel consumption of the other vehicles. Second, the lower fuel consumption of the other vehicles dominates the higher fuel consumption of the dual fueled vehicles. As a result, the average annual total fuel consumption per vehicle is lower than the fuel consumption per non-waivered, dual fueled vehicle.