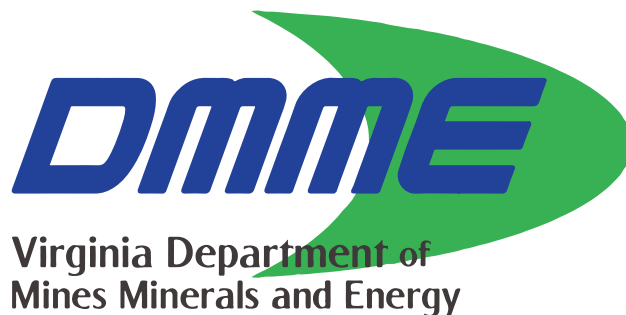




2017 Alternative Transportation Fuels Report

A Comprehensive Report of Alternative Fuel
Fleet Vehicles, Fuel Production, and Stations in Virginia

Prepared for:
The Virginia Department of Mines, Minerals, and Energy



January 22, 2018

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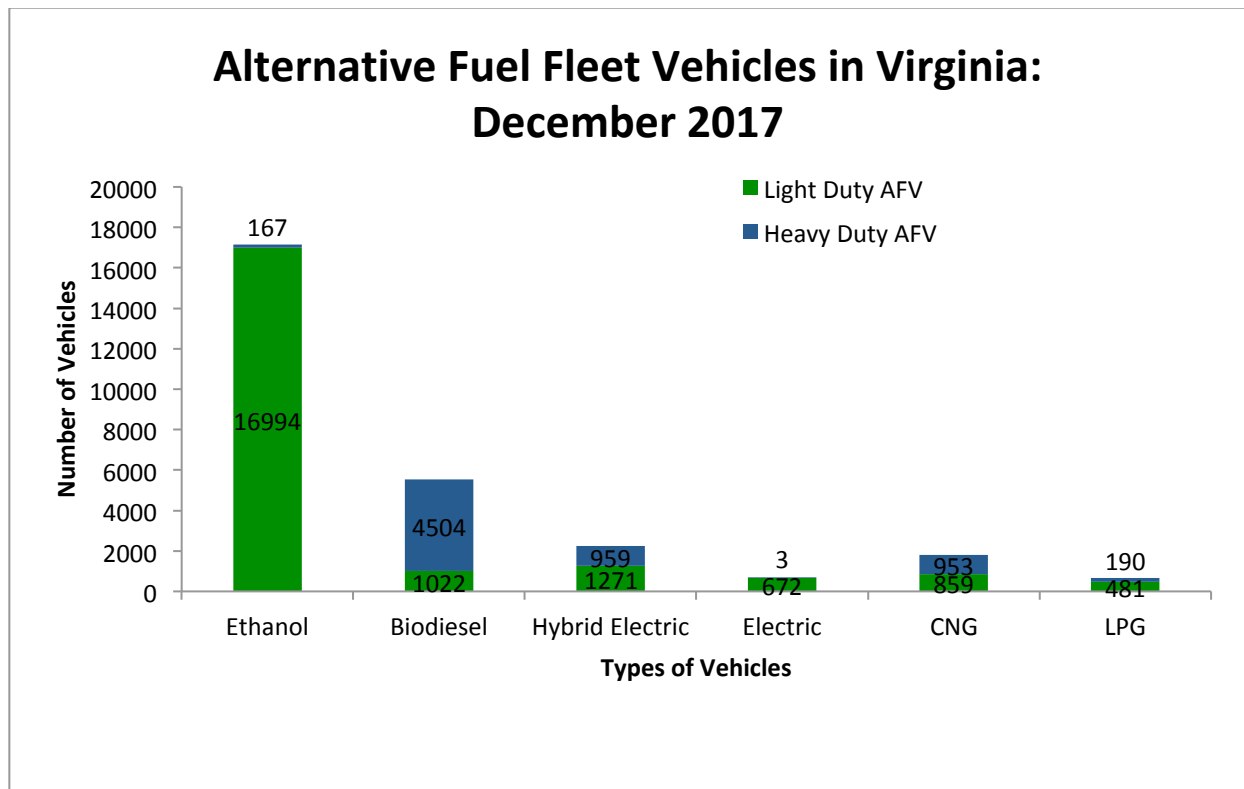
SECTION I: ALTERNATIVE FUEL FLEET VEHICLES SUMMARY

For the year ending December 31, 2017, the Commonwealth of Virginia saw an increase in the number of tracked alternative fuel fleet vehicles by 0.94%. The current percentage of alternative fuel vehicles used in Virginia fleets is 39.73%. All alternative fuel vehicle types except for HEV exhibited growth in 2017. There was a significant (30.59%) increase in LPG fleet vehicles in 2017. The vehicles reported are in service with private business fleets and local, state and federal government fleets.

Fuel Type	CNG	E85	HEV	ELEC	BD	LPG	AFV Total
2015 Totals	1784	16690	2041	467	5403	510	26895
2016 Totals	1805	17138	2230	667	5462	515	27817
2017 totals	1812	17161	2230	675	5526	671	28069
1 year Difference	7	23	0	8	64	156	252
% Growth	0.39%	0.14%	0.00%	0.43%	1.17%	30.59%	0.94%

The graph below shows the total alternative fuel fleet vehicles broken into light and heavy-duty classifications. A light duty vehicle is considered to be a class 1 through class 3 vehicles while a heavy-duty vehicle is class 4 through class 8.

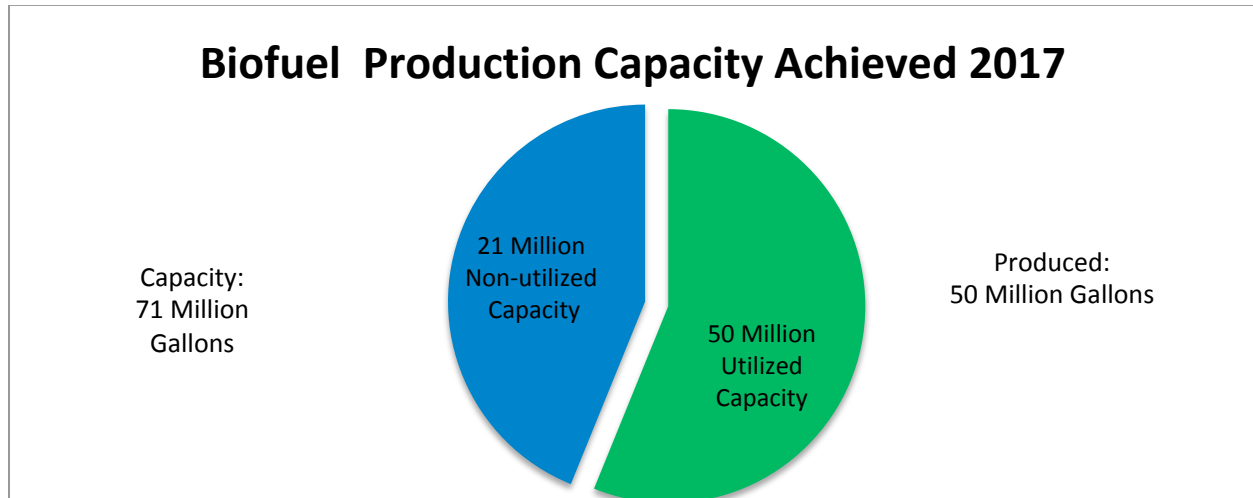
Figure 1-1. Alternative Fuel Fleet Vehicles in Virginia: 2017¹



SECTION II: BIOFUEL PRODUCTION SUMMARY

Currently there are three biodiesel facilities and two ethanol facilities in operation within the Commonwealth of Virginia. These facilities have a production capacity of 71 million gallons and produced just over 50 million gallons in 2017, a 70.4% utilization of capacity. This is an increase of 14% over the capacity produced from last year.

Figure 2-1. Biofuel Production Capacity Achieved in Virginia: 2017¹

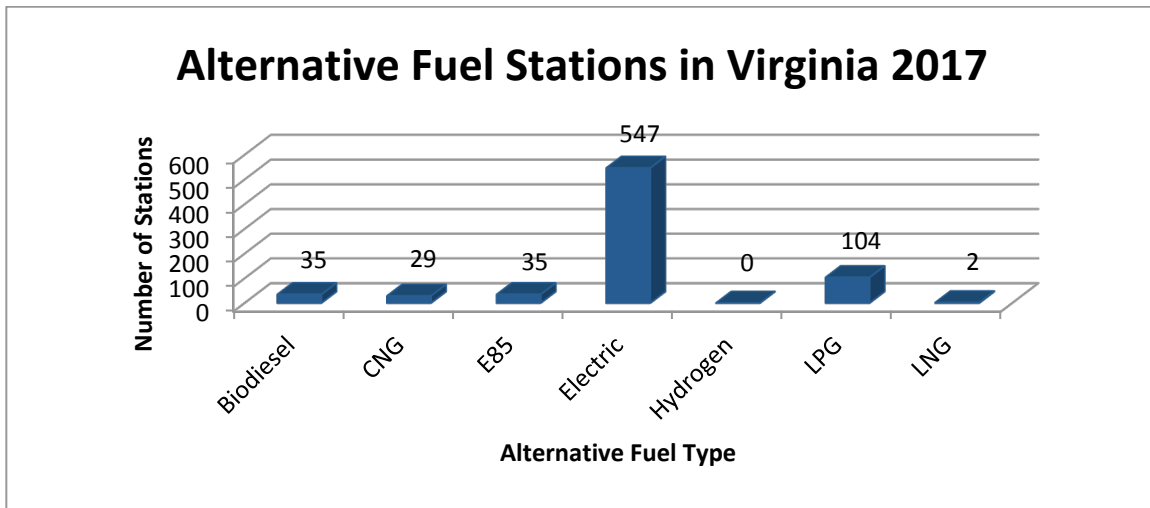


SECTION III: ALTERNATIVE FUEL STATION SUMMARY

The total number of alternative fuel stations reported for the Commonwealth of Virginia in 2017 is 752. Of those stations, 598 are public and 154 are private stations. Virginia had a growth of nearly 100 electric vehicles charging stations, marking a 19.43% growth for the year. Through the USDA Biofuels Infrastructure Partnership, Virginia added 4 new E85 stations, marking a 12.9% growth rate for the year. Around 70% of Virginia's gasoline vehicles (4,851,013) are model year 2001 and newer and therefore are compatible with E15 ethanol. Overall, there were 99 new stations reported in Virginia in 2017.

¹ Production data collected by Virginia Clean Cities through phone contact from January 1 to January 12, 2017

Figure 3-1. Alternative Fuel Stations in Virginia: 2017²



The growth of each type of alternative fuel station from 2016 to 2017 can be seen below. Although some fuel types showed no growth, the total number of alternative fuel stations in Virginia increased by 15.16% with the addition of 99 stations.

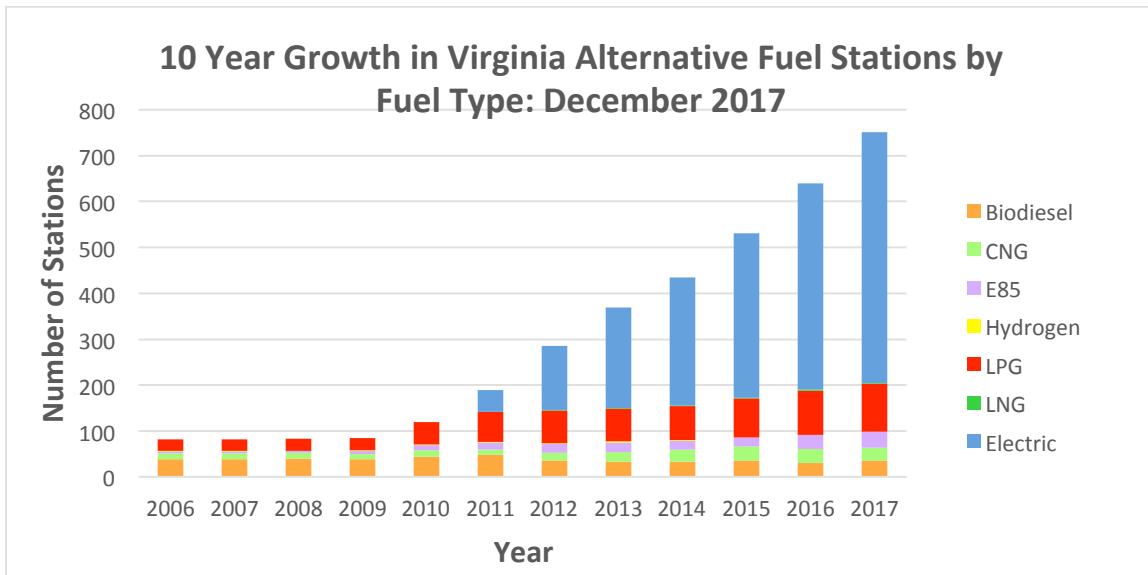
Table 3-1. Alternative Fuel Station Growth in Virginia: 2017³

Year	Biodiesel	CNG	E85	Electric	Hydrogen	LPG	LNG	Total
2016	30	29	31	458	0	103	2	653
2017	35	29	35	547	0	104	2	752
Growth	16.66%	0.0%	12.9%	19.43%	0.0%	0.97%	0.0%	15.16%

Over the last 4 years, electric vehicle charging stations have exhibited the largest growth and have become the most prevalent alternative fuel station in Virginia. Liquefied natural gas (LNG) and hydrogen stations have continually made up the smallest proportion of stations and this held true for 2017. Liquefied petroleum gas (LPG) has shown growth since 2006 but the total number of stations has fluctuated over time. Overall, the total number of alternative fuel stations in Virginia has continued to increase as alternative fuel use continues to expand, as seen in Figure 3-2 below.

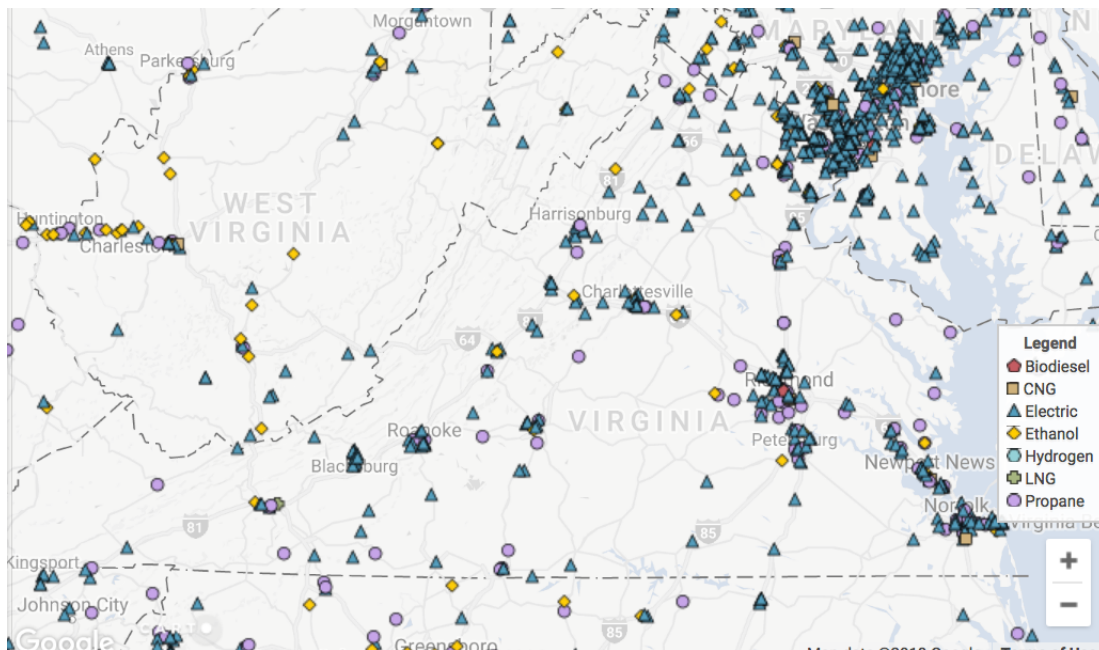
² Data collected by Virginia Clean Cities through use of AFDC station locator searches, phone calls, and personal contact from January 1, 2017 to December 31, 2017

Figure 3-2. Ten-Year Growth of Virginia Alternative Fuel Stations by Fuel Type: 2017



In order to observe the geographic distribution of these stations, a map is presented below. This map reflects planned and current stations that are both public and private. This map does not show all of the stations tracked by Virginia Clean Cities due to the fact that the Department of Energy only tracks stations with biodiesel blends with at least 20% biodiesel. The station totals presented in this report include all blends of biodiesel. This interactive mapping tool is hosted by the Department of Energy and can be found at <https://www.afdc.energy.gov/locator/stations/>.

Figure 3-3. 2017 Virginia Alternative Fuel Stations Map³



³ Virginia Alternative Fueling Station Locator, Alternative Fuels Data Center, U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. Retrieved January 10, 2018 from <http://www.afdc.energy.gov/afdc/locator/stations/state>