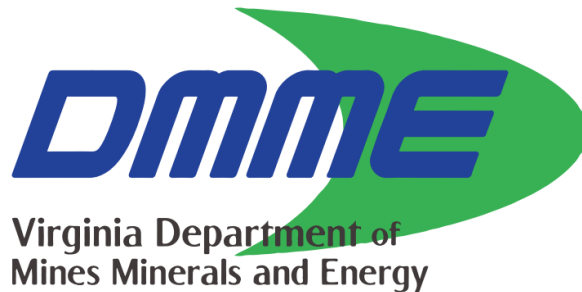




# 2015 Alternative Transportation Fuels Report

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

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



January 8, 2016

Virginia Clean Cities  
1401 Technology Drive, MSC 4115  
Harrisonburg, VA 22807  
[www.vacleancities.org](http://www.vacleancities.org)  
540-568-8896

## SECTION I: ALTERNATIVE FUEL FLEET VEHICLES SUMMARY

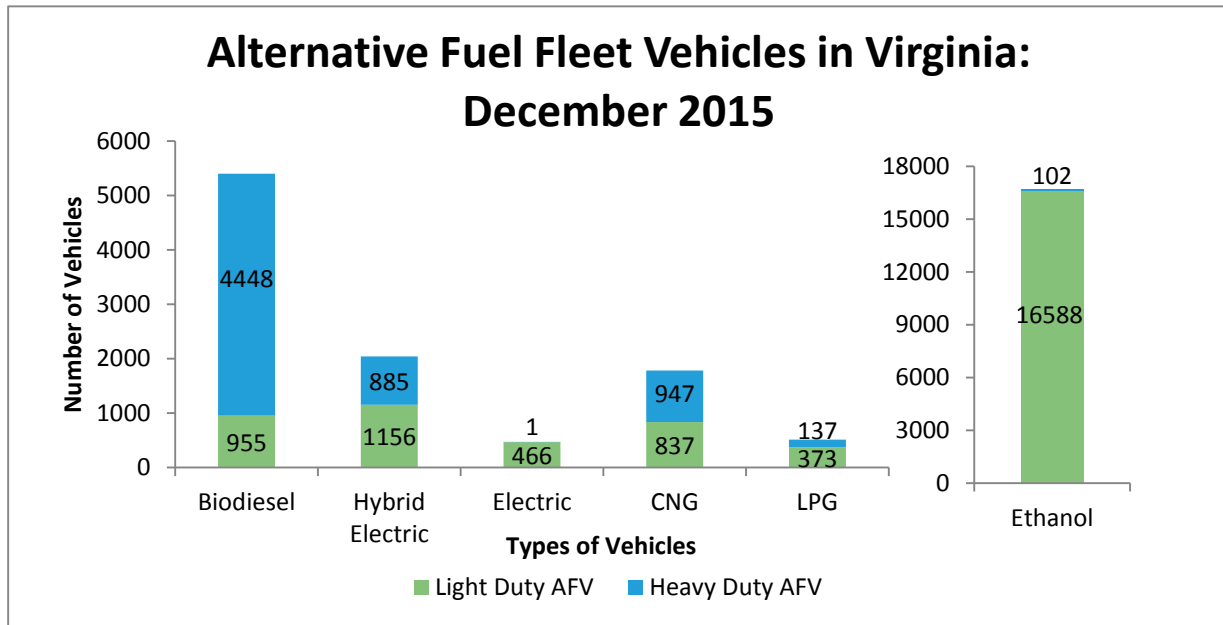
For the year ending December 31, 2015, the Commonwealth of Virginia saw an increase in the number of tracked alternative fuel fleet vehicles by 9.14%. The current percentage of alternative fuel vehicles used in Virginia fleets is 39.73%, with a two-year average of 28.6% and a five-year average of 26.0%. All alternative fuel vehicle types exhibited growth in 2015 with the exception of propane vehicles. Despite a decline in biodiesel use in previous years, there was a 16.62% increase in tracked biodiesel vehicles for 2015. The vehicles reported are in service with private business fleets and local, state and federal government fleets.

**Table 1-1. Growth of Reported Virginia Alternative Fuel Fleet Vehicles: 2015<sup>1</sup>**

Year	CNG	E85	HEV	ELEC	BD	LPG	AFV Total
2014	1210	15999	1943	466	4505	519	24642
2015	1784	16690	2041	467	5403	510	26895
Percent Growth	47.44%	4.32%	4.80%	0.21%	16.62%	0%	9.14%

The majority of the growth in these tracked alternative fuel fleet vehicles was in the number of CNG vehicles reported, which increased by a total of 47.44% from 2014. Biodiesel vehicles also showed growth at high rates, with 898 new fleet vehicles reported in 2015. 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 vehicle while a heavy duty vehicle is class 4 through class 8. Due to the large number of E85 vehicles tracked for this year, ethanol vehicles are displayed on a separate axis within the same figure.

**Figure 1-1. Alternative Fuel Fleet Vehicles in Virginia: 2015<sup>1</sup>**

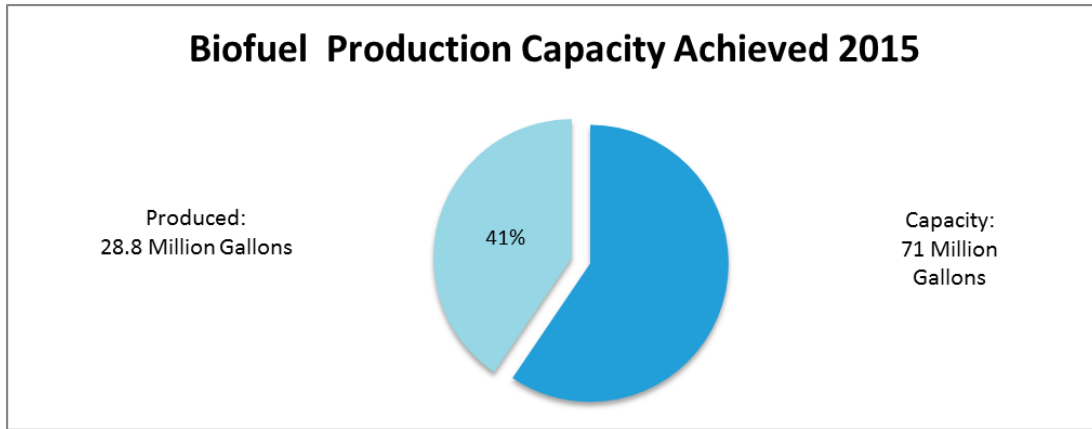


<sup>1</sup> Data collected by Virginia Clean Cities through online survey, phone calls, and personal contact from January 1, 2014 to December 31, 2015

## SECTION II: BIOFUEL PRODUCTION SUMMARY

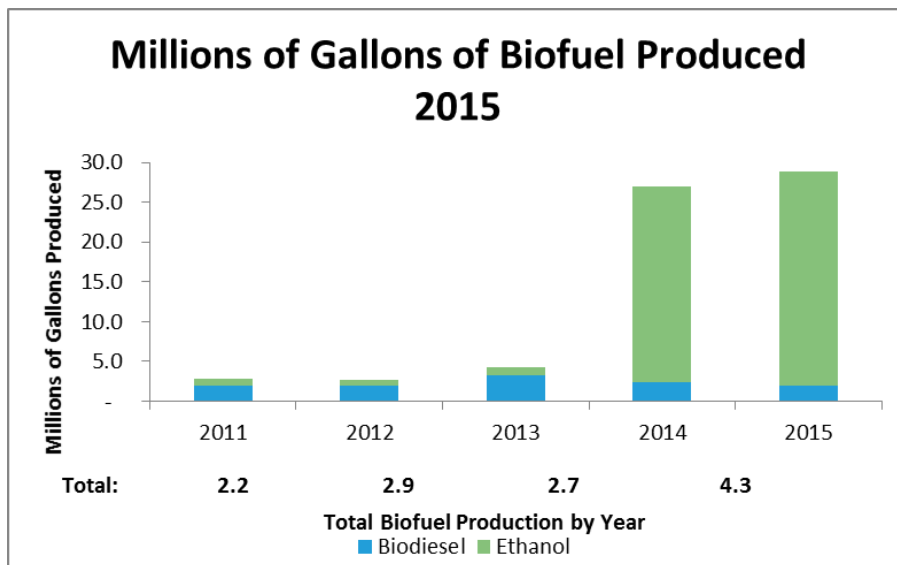
Three small biodiesel facilities and two ethanol facilities are currently in operation within the Commonwealth of Virginia. These facilities have a production capacity of 71 million gallons and produced nearly 28.8 million gallons of fuel in 2015. Therefore, production in Virginia in 2015 was approximately 41% of total capacity for biofuel, increasing 6% over the capacity produced from last year.

**Figure 2-1. Biofuel Production Capacity Achieved in Virginia: 2015<sup>2</sup>**



The chart below shows gallons of biofuel produced in Virginia in both ethanol and biodiesel facilities over the last five years. Production numbers have stayed relatively constant from 2014 to 2015. The graph below shows the breakdown of ethanol and biodiesel production, with the total amount of fuel produced per year displayed in millions of gallons.

**Figure 2-2. Millions of Gallons of Biofuel Produced in Virginia: 2015<sup>2</sup>**

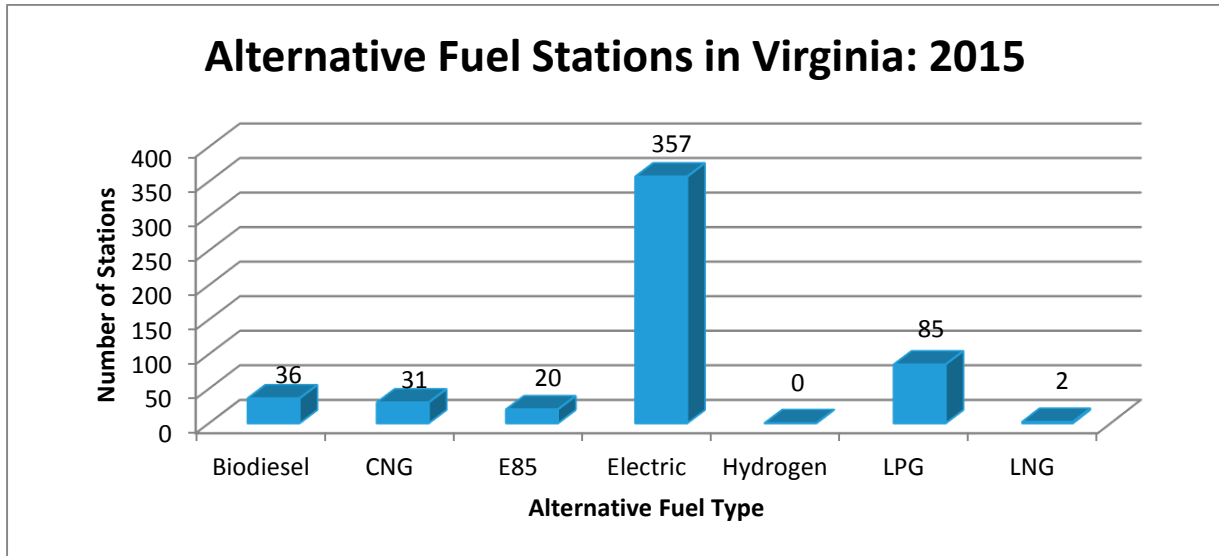


<sup>2</sup> Production data collected by Virginia Clean Cities through phone and email contact in January 2015

### SECTION III: ALTERNATIVE FUEL STATION SUMMARY

The total number of alternative fuel stations reported for the Commonwealth of Virginia in 2015 is 530. Of those stations, 401 are public and 129 are private stations. Although some fuel types showed no growth or negative growth, the total number of alternative fuel stations in Virginia increased by 22.35% with the addition of 97 stations. Virginia had a growth of 79 electric vehicle charging stations, marking a 28.4% growth for the year. LPG stations also exhibited a large percent growth with 11 stations opening in 2015 for a growth of 14.9%. There was no growth in the number of LNG stations and there was a slight decline in hydrogen stations, with the one station from 2014 closing this year. A slight growth in biodiesel and CNG stations was also seen, with 4 new stations of each opening in 2015. Overall, there was a 22.35% increase in stations, with 97 new stations reported in Virginia in 2015. This increase demonstrates significant progress toward the recommendation set forth in the Virginia Energy Plan to double the number of alternative fuel fueling stations to reach 800 by the close of the Administration.

Figure 3-1. Alternative Fuel Stations in Virginia: 2015<sup>3</sup>



The growth of each type of alternative fuel station from 2014 to 2015 can be seen below.

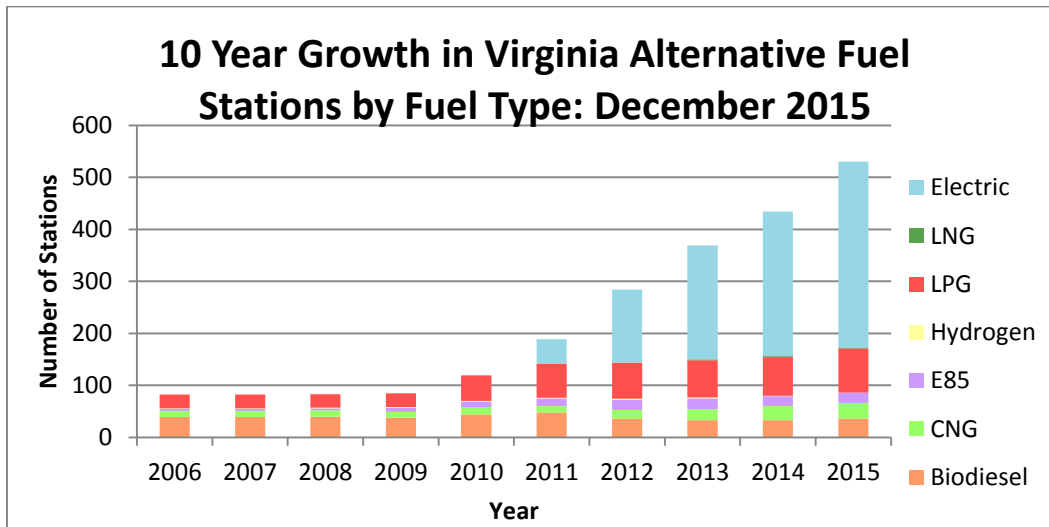
Table 3-1. Alternative Fuel Station Growth in Virginia: 2015<sup>3</sup>

Year	Biodiesel	CNG	E85	Electric	Hydrogen	LPG	LNG	Total
2014	33	27	19	278	1	74	2	434
2015	36	31	20	357	0	85	2	531
Growth	9.09%	14.81%	5.26%	28.42%	0%	14.86%	0%	22.35%

<sup>3</sup> Data collected by Virginia Clean Cities through use of AFDC station locator searches, phone calls, and personal contact from January 1, 2015 to December 31, 2015

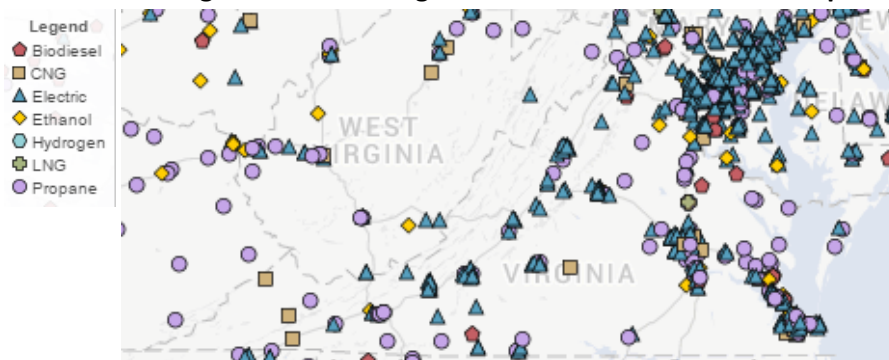
Over the last 4 years, electric vehicle charging stations have exhibited the largest growth and have become the most prevalent alternative fuel station in Virginia. Liquefied natural gas (LNG) and hydrogen stations have continually made up the smallest proportion of stations and this held true for 2015. Liquefied propane gas (LPG) has shown growth since 2005 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.

**Figure 3-2. Ten Year Growth of Virginia Alternative Fuel Stations by Fuel Type: 2015**



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

**Figure 3-3. 2015 Virginia Alternative Fuel Stations Map<sup>4</sup>**



<sup>4</sup> Virginia Alternative Fueling Station Locator, Alternative Fuels Data Center, U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy. Retrieved January 4, 2016 from <http://www.afdc.energy.gov/afdc/locator/stations/state>