



Texas Department  
of Motor Vehicles  
HELPING TEXANS GO. HELPING TEXAS GROW.



# 2020

Alternatively Fueled  
Vehicle Report

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## The Texas Department of Motor Vehicles

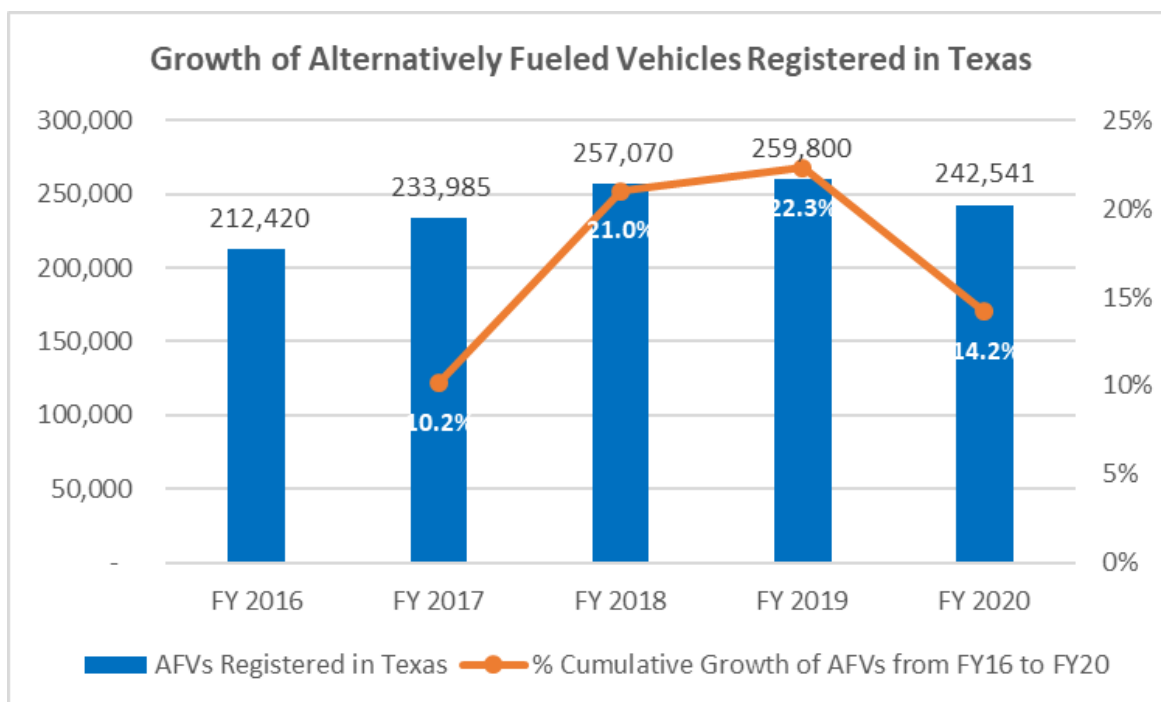
The Texas Department of Motor Vehicles is a dynamic state agency with the mission “to serve, protect and advance the citizens and industries in the state with quality motor vehicle related services.” In addition to licensing vehicle dealers, awarding grants to law enforcement to combat motor vehicle crimes and issuing operating authority and oversize/overweight permits to motor carriers, the department oversees the issuance of tens of millions of vehicle registration stickers and approximately seven million vehicle titles annually.

### Executive Summary

The Texas Department of Motor Vehicles reports the number of alternatively fueled vehicles (AFVs) registered in Texas to the Texas Legislature annually pursuant to Texas Transportation Code §502.004 (Appendix I). The Fiscal Year (FY) 2020 report contains data from FY 2016 through FY 2020, showing a five-year trend in the number of AFVs registered in Texas. For the purposes of this report, AFVs are motor vehicles capable of using fuels other than gasoline or diesel fuel and hybrid vehicles.

The number of AFVs registered in Texas at the end of FY 2020 was 242,541. Although AFVs represent only about 1% of the total number of vehicles registered, their numbers have grown by more than 14% since FY 2016 (Chart 1), outpacing the growth in overall vehicle registrations. The total number of registered vehicles, including AFVs, experienced a slight decrease from FY 2019 to 2020 (Chart 2), which is mostly attributable to the COVID-19-related waiver of registration requirements.

**Chart 1**



**Chart 2**

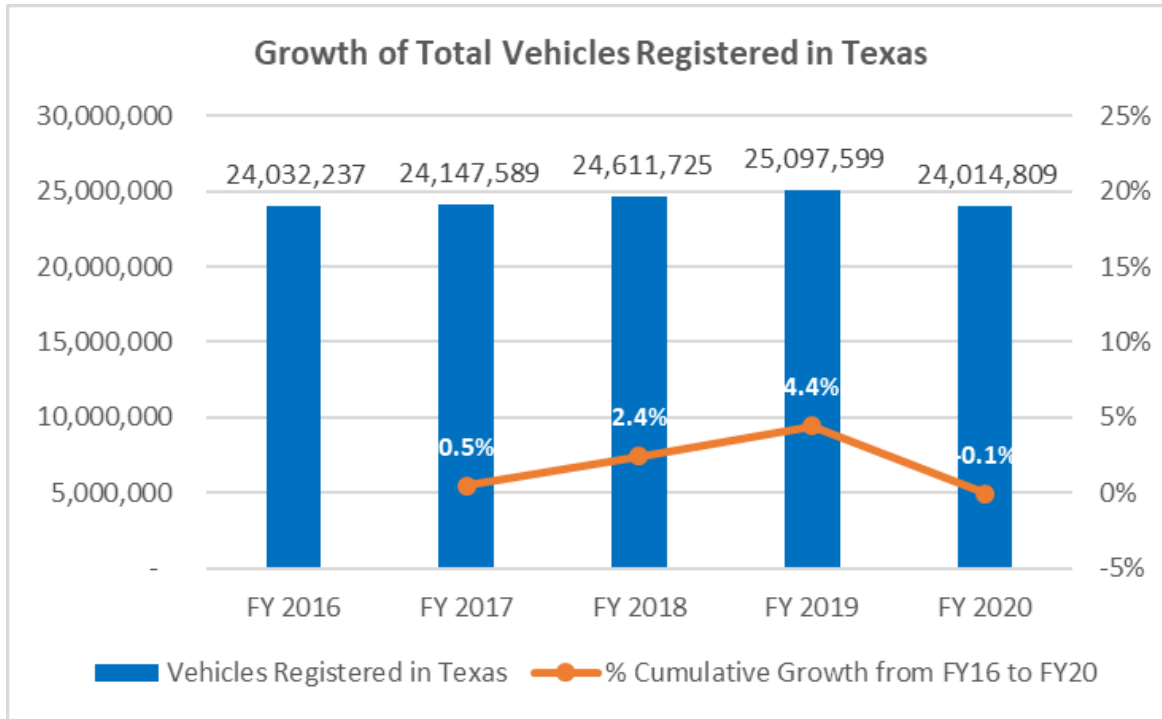


Chart 3 shows the breakdown by fuel type of AFVs registered in Texas. Electric and gas hybrids remain the predominant type with 83% of AFVs registered, but that has decreased by 10.6 percentage points since 2016. Over the same period, electric vehicles registered as a percentage of all AFVs has grown by 11.07 percentage points.

**Chart 3**

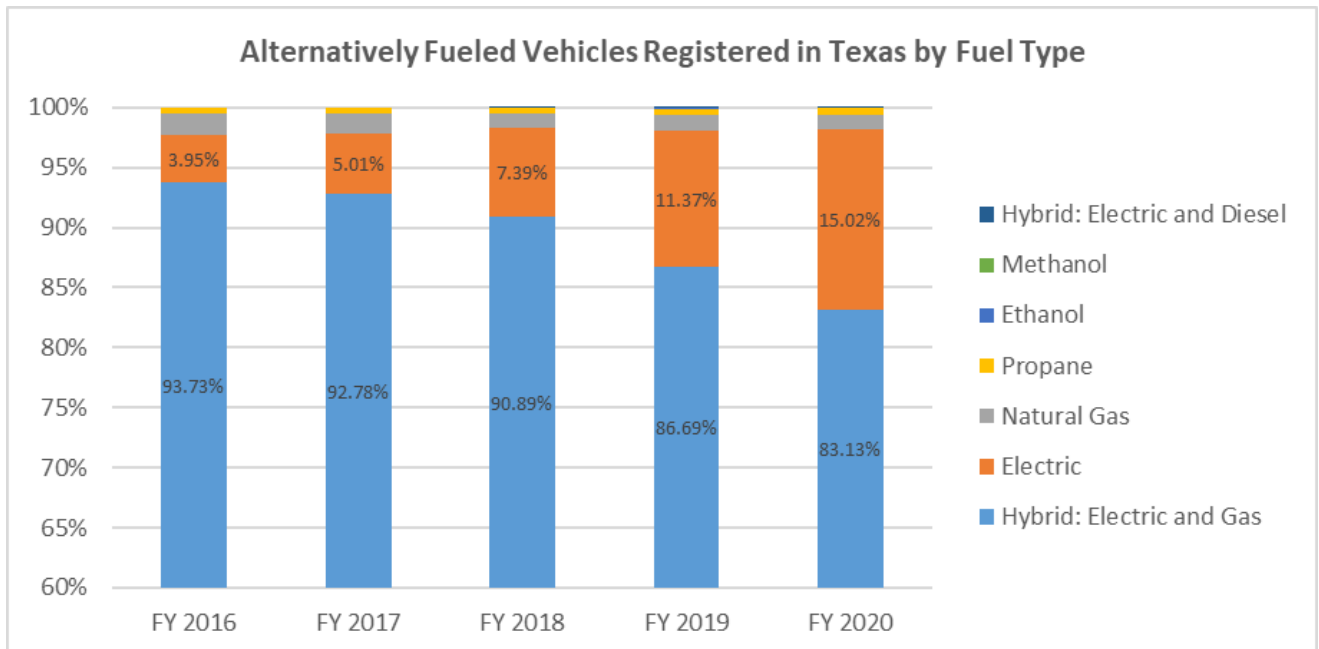
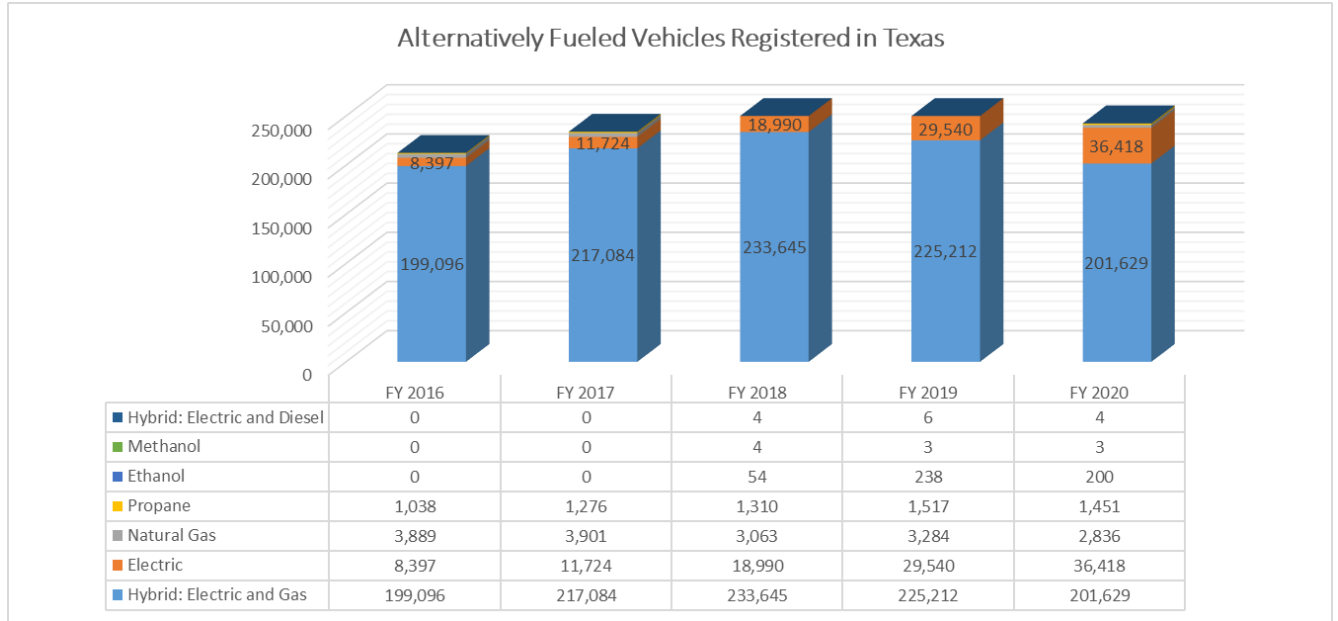


Chart 4 summarizes AFV registration data from FY 2016 through FY 2020. The 14.18% increase in the number of registered AFVs is driven largely by electric vehicles, which grew by 28,021 or almost 334% from FY 2016 to FY 2020.

**Chart 4**



## Methodology

A Vehicle Identification Number (VIN) is a unique alphanumeric identifier that has been assigned to vehicles by vehicle manufacturers since 1954. While its form and function has changed over time, the standard 17-character VIN used today was developed by the National Highway Traffic Safety Administration and has been required for all over-the-road vehicles, including passenger cars, multi-purpose passenger vehicles, trucks, buses, incomplete vehicles and motorcycles, since 1981.

### Data Limitations Related to VIN Decoding

Third party VIN decoding software is used to determine the fuel types of vehicles registered in Texas. The software can decode VINs back to 1966. In FY 2020 there were slightly more than 5.6 million (23.4%) registered vehicles where the fuel type could not be determined or was not indicated. Also, some VINs cannot be decoded due to errors in the automated decoding process, VINs assigned by the manufacturer not including fuel type, and VINs assigned by the department not including vehicle-specific information. Additionally, vehicles in the database like trailers are not self-propelled and do not utilize fuel.

### Data Limitations Related to COVID-19

On March 13, 2020, Governor Greg Abbott declared a state of disaster in all Texas counties in response to the global COVID-19 pandemic. Three days later requirements to register vehicles were waived to ensure customers were not required to physically visit a county tax assessor-collector's office and perform in-person transactions. The waiver remains in effect until April 14, 2021. Customers may continue to renew their vehicle registration online.

As of the date of this report, the registration waivers remain in effect and for the first time since 2015, the total number of vehicles registered in Texas has decreased. This decrease is mostly because some customers have delayed registering their vehicles due to the waiver.

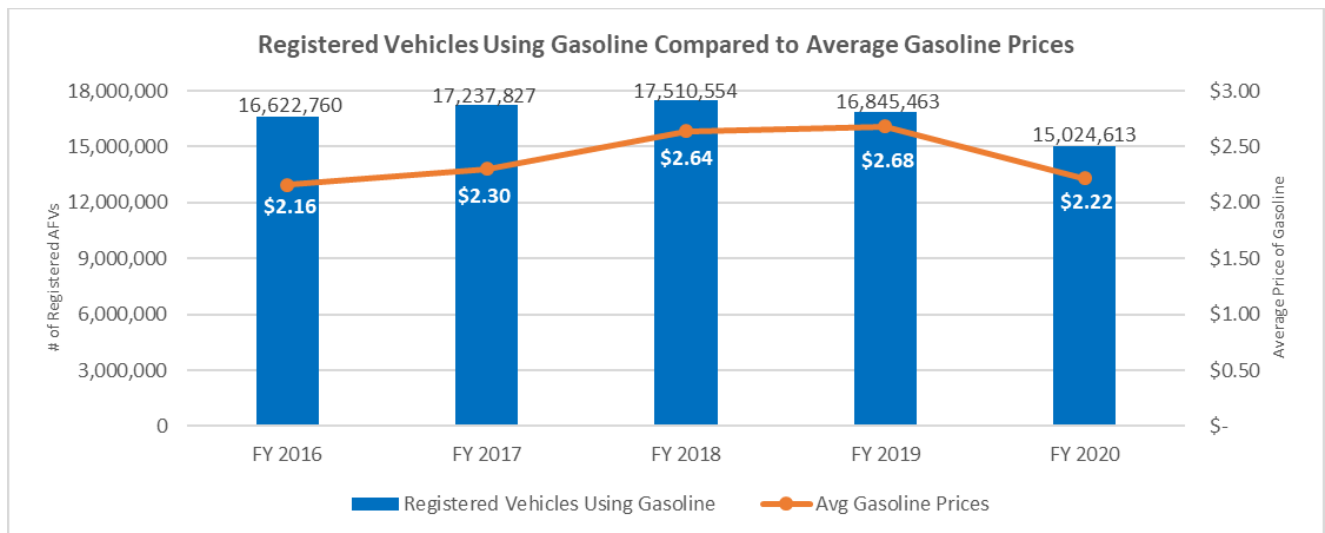
## Fuel Types and Associated Registered Vehicles

Below are brief descriptions of the various fuel types in use today by self-propelled vehicles. The fuels identified as alternative for purposes of this report include electricity, natural gas, propane, ethanol, methanol and hybrid vehicles. Fuel descriptions and fuel prices were sourced from the United States Department of Energy [Alternative Fuels Data Center](https://afdc.energy.gov)<sup>1</sup>.

### Gasoline

Gasoline, a transparent, petroleum-derived liquid that is used primarily as a fuel in internal combustion engines, is the most common type of vehicle fuel and is used by more than 15 million (62.56%) vehicles in the state. The average price of gasoline increased 3% from FY 2016 to FY 2020, while the number of registered vehicles that use gasoline dropped 10% for the same time period (Chart 5).

**Chart 5**



<sup>1</sup> <https://afdc.energy.gov>

### Flexible (Flex)

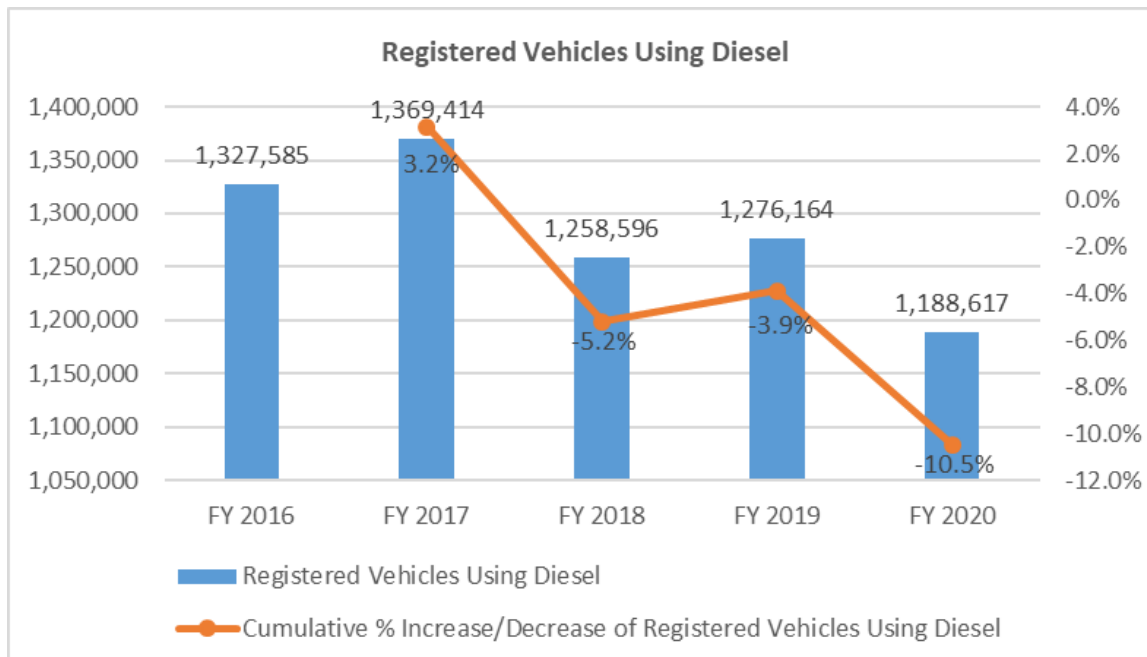
Flexible fuel vehicles are designed to operate using either gasoline or gasoline-ethanol blends containing up to 85% ethanol. Almost 2 million (8.1%) vehicles in Texas can use flexible fuel and the total number of vehicles registered in Texas that can use gasoline and/or flexible fuel is almost 17 million (70.66%).

### Diesel

Diesel includes products commonly referred to as kerosene, light cycle oil, #1 diesel fuel, #2 diesel fuel, aviation jet fuel, renewable diesel, biodiesel, distillate fuel, cutter stock, heating oil or simply diesel fuel. There are almost 1.2 million (4.95%) diesel fueled vehicles registered in Texas. This is almost a 7% decrease from FY 2019 and a decrease of more than 10% from FY 2016 (Chart 6). The average price of diesel increased 5% from FY 2016 to FY 2020, but due to the popularity of pickup trucks in Texas, it remains to be seen if the overall declining trend in diesel fueled vehicles registered in Texas continues.



**Chart 6**





## Electricity

Electric vehicles are wholly powered by electricity and use battery packs to store and release energy. There are 36,418 (0.15%) electric vehicles registered in Texas. Although a small fraction of the total vehicles registered in Texas, this category represents the largest percentage of increase of any alternatively fueled vehicle type year-over-year. The number of electric vehicles registered in Texas has grown by 28,021 (333.7%) since FY 2016. There are several factors that may be contributing to the growth in this category including rising gasoline prices, lower priced vehicles, and greater consumer concern about the environment.



## Hybrid: Gasoline and Electric

Gasoline and electric hybrids can use either fuel type, or both in combination, to propel a vehicle as determined by the design of the vehicle. There are varying degrees in which the vehicle utilizes the electric motor versus the gasoline-powered motor. In some instances, the two motors work together to provide power to the drivetrain. In other instances, the gasoline motor is only used to recharge the batteries for the electric motor. There are 201,629 (0.84%) gasoline and electric hybrid vehicles registered in Texas. This is an increase of 1.27% from FY 2016.

## Hybrid: Diesel and Electric

These hybrid vehicles are similar to gasoline and electric hybrids but utilize diesel fuel rather than gasoline. There are 4 diesel and electric hybrid vehicles registered in Texas.

## Propane

Propane is a hydrocarbon gas that is stored under pressure inside a tank where it turns to liquid. As pressure is released, the liquid propane vaporizes and turns into gas that is used for combustion. There are 1,451 (less than 0.01%) propane fueled vehicles registered in Texas.

## Convertible

Convertible vehicles have engines that are easily converted from gasoline to propane and represent 2,926 (0.01%) of registered vehicles. This is a 55.32% decrease from FY 2016.

## Natural Gas



Natural gas primarily consists of methane that is compressed and used by or through a compressed natural gas (CNG) system. It can be used in the form of CNG or liquefied natural gas (LNG) to fuel vehicles. Conventional gasoline and diesel vehicles can be retrofitted for CNG; however, VIN decoding would not indicate that the engine had been converted. There are 2,836 (0.01%) compressed natural gas fueled vehicles registered in Texas.

## Ethanol

Ethanol can be produced from many high-starch plant sources and is primarily used as an octane enhancer when blended with gasoline but can also be used in higher concentrations by vehicles designed to accommodate its use. There are 200 ethanol fueled vehicles registered in Texas. This is almost a 16% decrease from last year but flat as a percentage of total registered vehicles.



## Methanol

Methanol, also known as wood alcohol, has chemical and physical properties like ethanol. There are 3 methanol fueled vehicles registered in Texas.

## Hydrogen Fuel Cell



Hydrogen fuel cells harness a chemical reaction to create electricity and propel a vehicle making them similar to hybrid electric vehicles. This is a relatively new technology for use in motor vehicles and, therefore, there are not many vehicles available to consumers. The Texas Department of Motor Vehicles has no records indicating there are any vehicles registered in Texas using this fuel type.

### Appendix A – Vehicles Registered in Texas by Fuel Type – FY 2020

FUEL TYPE	NUMBER OF REGISTERED VEHICLES	PERCENT OF TOTAL
Hybrid: Electric and Gas	201,629	0.84%
Electric	36,418	0.15%
Natural Gas	2,836	0.01%
Propane	1,451	0.01%
Ethanol	200	0.00%
Hybrid: Electric and Diesel	4	0.00%
Methanol	3	0.00%
<b>Subtotal, Alternative Fuels</b>	<b>242,541</b>	<b>1.01%</b>
Gasoline	15,024,613	62.56%
Flexible	1,945,689	8.10%
Diesel	1,188,617	4.95%
Convertible	2,926	0.01%
Hydrogen Fuel Cell	-	-
Fuel Type Not Disclosed*	291,046	1.31%
Fuel Type Unknown**	5,319,377	22.15%
<b>Subtotal, Non-Alternative Fuels</b>	<b>23,772,268</b>	<b>98.99%</b>
<b>Total Number of Registered Vehicles</b>	<b>24,018,809</b>	<b>100.00%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

### Appendix B – Vehicles Registered in Texas by Fuel Type – FY 2019

FUEL TYPE	NUMBER OF REGISTERED VEHICLES	PERCENT OF TOTAL
Hybrid: Electric and Gas	225,212	0.90%
Electric	29,540	0.12%
Natural Gas	3,284	0.01%
Propane	1,517	0.01%
Ethanol	238	0.00%
Methanol	3	0.00%
Hybrid: Electric and Diesel	6	0.00%
<b>Subtotal, Alternative Fuels</b>	<b>259,800</b>	<b>1.04%</b>
Gasoline	16,845,463	67.12%
Flexible	2,168,253	8.64%
Diesel	1,276,164	5.08%
Convertible	3,830	0.02%
Hydrogen Fuel Cell	-	-
Fuel Type Not Disclosed*	329,708	1.31%
Fuel Type Unknown**	4,214,381	16.79%
<b>Subtotal, Non-Alternative Fuels</b>	<b>24,837,799</b>	<b>98.96%</b>
<b>Total Number of Registered Vehicles</b>	<b>25,097,599</b>	<b>100.00%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

### Appendix C – Vehicles Registered in Texas by Fuel Type – FY 2018

FUEL TYPE	NUMBER OF REGISTERED VEHICLES	PERCENT OF TOTAL
Hybrid: Electric and Gas	233,645	0.95%
Electric	18,990	0.08%
Natural Gas	3,063	0.01%
Propane	1,310	0.01%
Ethanol	54	0.00%
Methanol	4	0.00%
Hybrid: Electric and Diesel	4	0.00%
<b>Subtotal, Alternative Fuels</b>	<b>257,070</b>	<b>1.04%</b>
Gasoline	17,510,554	71.15%
Flexible	2,231,880	9.07%
Diesel	1,258,596	5.11%
Convertible	4,473	0.02%
Hydrogen Fuel Cell	-	-
Fuel Type Not Disclosed*	336,527	1.37%
Fuel Type Unknown**	3,012,625	12.24%
<b>Subtotal, Non-Alternative Fuels</b>	<b>24,354,655</b>	<b>98.96%</b>
<b>Total Number of Registered Vehicles</b>	<b>24,611,725</b>	<b>100.00%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

### Appendix D – Vehicles Registered in Texas by Fuel Type – FY 2017

FUEL TYPE	NUMBER OF REGISTERED VEHICLES	PERCENT OF TOTAL
Hybrid: Electric and Gas	217,084	0.90%
Electric	11,724	0.05%
Natural Gas	3,901	0.02%
Propane	1,276	0.01%
Ethanol	-	0.00%
Methanol	-	0.00%
Hybrid: Electric and Diesel	-	0.00%
<b>Subtotal, Alternative Fuels</b>	<b>233,985</b>	<b>0.97%</b>
Gasoline	17,237,827	71.39%
Flexible	2,215,878	9.18%
Diesel	1,369,414	5.67%
Convertible	5,756	0.02%
Hydrogen Fuel Cell	-	-
Fuel Type Not Disclosed*	715	0.00%
Fuel Type Unknown**	3,084,014	12.77%
<b>Subtotal, Non-Alternative Fuels</b>	<b>23,913,604</b>	<b>99.03%</b>
<b>Total Number of Registered Vehicles</b>	<b>24,147,589</b>	<b>100.00%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

### Appendix E – Vehicles Registered in Texas by Fuel Type – FY 2016

FUEL TYPE	NUMBER OF REGISTERED VEHICLES	PERCENT OF TOTAL
Hybrid: Electric and Gas	199,096	0.83%
Electric	8,397	0.04%
Natural Gas	3,889	0.02%
Propane	1,038	0.00%
Ethanol	-	0.00%
Methanol	-	0.00%
Hybrid: Electric and Diesel	-	0.00%
<b>Subtotal, Alternative Fuels</b>	<b>212,420</b>	<b>0.88%</b>
Gasoline	16,622,760	69.17%
Flexible	2,127,669	8.85%
Diesel	1,327,585	5.52%
Convertible	6,549	0.03%
Hydrogen Fuel Cell	-	-
Fuel Type Not Disclosed*	555	0.00%
Fuel Type Unknown**	3,734,699	15.54%
<b>Subtotal, Non-Alternative Fuels</b>	<b>23,819,817</b>	<b>99.12%</b>
<b>Total Number of Registered Vehicles</b>	<b>24,032,237</b>	<b>100.00%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

### Appendix F – Year-Over-Year Comparison – Vehicle Count

FUEL TYPE	FY 2016 REGISTERED VEHICLES	FY 2017 REGISTERED VEHICLES	FY 2018 REGISTERED VEHICLES	FY 2019 REGISTERED VEHICLES	FY 2020 REGISTERED VEHICLES
Hybrid: Electric and Gas	199,096	217,084	233,645	225,212	201,629
Electric	8,397	11,724	18,990	29,540	36,418
Natural Gas	3,889	3,901	3,063	3,284	2,836
Propane	1,038	1,276	1,310	1,517	1,451
Ethanol	-	-	54	238	200
Methanol	-	-	4	3	3
Hybrid: Electric and Diesel	-	-	4	6	4
<b>Subtotal, Alt. Fuels</b>	<b>212,420</b>	<b>233,985</b>	<b>257,070</b>	<b>259,800</b>	<b>242,541</b>
Gasoline	16,622,760	17,237,827	17,510,554	16,845,463	15,024,613
Flexible	2,127,669	2,215,878	2,231,880	2,168,253	1,945,689
Diesel	1,327,585	1,369,414	1,258,596	1,276,164	1,188,617
Convertible	6,549	5,756	4,473	3,830	2,926
Hydrogen Fuel Cell	-	-	-	-	-
Fuel Type Not Disclosed*	555	715	336,527	329,708	291,046
Fuel Type Unknown**	3,734,699	3,084,014	3,012,625	4,214,381	5,319,377
<b>Subtotal, Non-Alt. Fuels</b>	<b>23,819,817</b>	<b>23,913,604</b>	<b>24,354,655</b>	<b>24,837,799</b>	<b>23,772,268</b>
<b>Total Vehicles Registered</b>	<b>24,032,237</b>	<b>24,147,589</b>	<b>24,611,725</b>	<b>25,097,599</b>	<b>24,018,809</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.



## Appendix G – Year-Over-Year Comparison – Percentage of Change

FUEL TYPE	FY 2016 to FY 2017	FY 2017 to FY 2018	FY 2018 to FY 2019	FY 2019 to FY 2020	FY 2016 to FY 2020
Hybrid: Electric/Gas	9.03%	7.63%	-3.61%	-10.47%	1.27%
Electric	39.62%	61.98%	55.56%	23.28%	333.70%
Natural Gas	0.31%	-21.48%	7.22%	-13.64%	-27.08%
Propane	22.93%	2.66%	15.80%	-4.35%	39.79%
Ethanol	-	-	340.74%	-15.97%	-
Methanol	-	-	-25.00%	-	-
Hybrid: Electric/Diesel	-	-	50.00%	-33.33%	-
<b>Subtotal, Alt. Fuels</b>	<b>10.15%</b>	<b>9.87%</b>	<b>1.06%</b>	<b>-6.64%</b>	<b>14.18%</b>
Gasoline	3.70%	1.58%	-3.80%	-10.81%	-9.61%
Flexible	4.15%	0.72%	-2.85%	-10.26%	-8.55%
Diesel	3.15%	-8.09%	1.40%	-6.86%	-10.47%
Convertible	-12.11%	-22.29%	-14.38%	-23.60%	-55.32%
Hydrogen Fuel Cell	-	-	-	-	-
Fuel Type Not Disclosed*	28.83%	46,967%	-2.03%	-11.73%	52,341%
Fuel Type Unknown**	-17.42%	-2.31%	39.89%	26.22%	42.43%
<b>Subtotal, Non-Alt. Fuels</b>	<b>0.39%</b>	<b>1.84%</b>	<b>1.98%</b>	<b>-4.29%</b>	<b>0.20%</b>
<b>Total Registered</b>	<b>0.48%</b>	<b>1.92%</b>	<b>1.97%</b>	<b>-4.30%</b>	<b>-0.06%</b>

\* The VIN decoding process returned the fuel type in question as “undisclosed.”

\*\* Unknown fuel types are the result of an error in the VIN decoding process, the VIN not designating a fuel type, or, most likely, the vehicle in question not being self-propelled such as a trailer.

## Appendix H – State Tax Rates on Motor Vehicle Fuels

Gasoline, diesel, and gasoline blends, such as e85 or flexible fuel, are taxed by the state at a rate of \$0.20 per gallon (see Tax Code §§ 162.102 & .202).

Compressed Natural Gas and Liquefied Natural Gas are taxed by the state at \$0.15 per gallon equivalent (see Tax Code § 162.353).

Motor vehicle fuel types other than those noted above are not presently taxed by the State of Texas.

## Appendix I – Texas Transportation Code § 502.004

### TRANSPORTATION CODE

#### TITLE 7. VEHICLES AND TRAFFIC

##### SUBTITLE A. CERTIFICATES OF TITLE AND REGISTRATION OF VEHICLES

#### CHAPTER 502. REGISTRATION OF VEHICLES

##### SUBCHAPTER A. GENERAL PROVISIONS

#### Sec. 502.004. INFORMATION ON ALTERNATIVELY FUELED VEHICLES.

(a) In this section, "alternatively fueled vehicle" means a motor vehicle that is capable of using a fuel other than gasoline or diesel fuel.

(b) The department by rule shall establish a program to collect information about the number of alternatively fueled vehicles registered in this state.

(c) The department shall submit an annual report to the legislature that includes the information collected under this section. The report must, at a minimum, show the number of vehicles registered in this state that use:

- (1) electric plug-in drives;
- (2) hybrid electric drives;
- (3) compressed natural gas drives; and
- (4) liquefied natural gas drives.