Estimating Motor Fuel Demand in South Carolina

FY 2026-27 and FY 2027-28

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II. INTRODUCTION

This report analyzes the history of South Carolina's motor fuel consumption and revenue and uses linear regression models to project the total revenue for the next two fiscal years. The primary types of motor fuel used in South Carolina are gasoline and diesel fuel, although gasoline is consumed at a rate of over three times more than diesel in the state. For the purposes of this report, the term "gasoline" refers to both gasoline and gasohol, and the term "diesel" refers to diesel, biodiesel, and liquified petroleum gas.

III. HISTORICAL MOTOR FUEL CONSUMPTION AND REVENUE

Motor fuel demand in South Carolina has generally increased over time. However, in 2020, consumption significantly decreased due to the effects of the COVID-19 pandemic. Reduced travel and restrictions significantly impacted demand, particularly for gasoline in late FY 2019-20. Additional factors such as motor fuel prices and an increasing demand for electric and hybrid motor vehicles have also affected the consumption of motor fuels, especially gasoline.

Figures 1 and 2 below show the motor fuel gallons subject to the user fees in South Carolina.

Figure 1. South Carolina Motor Fuel Consumption

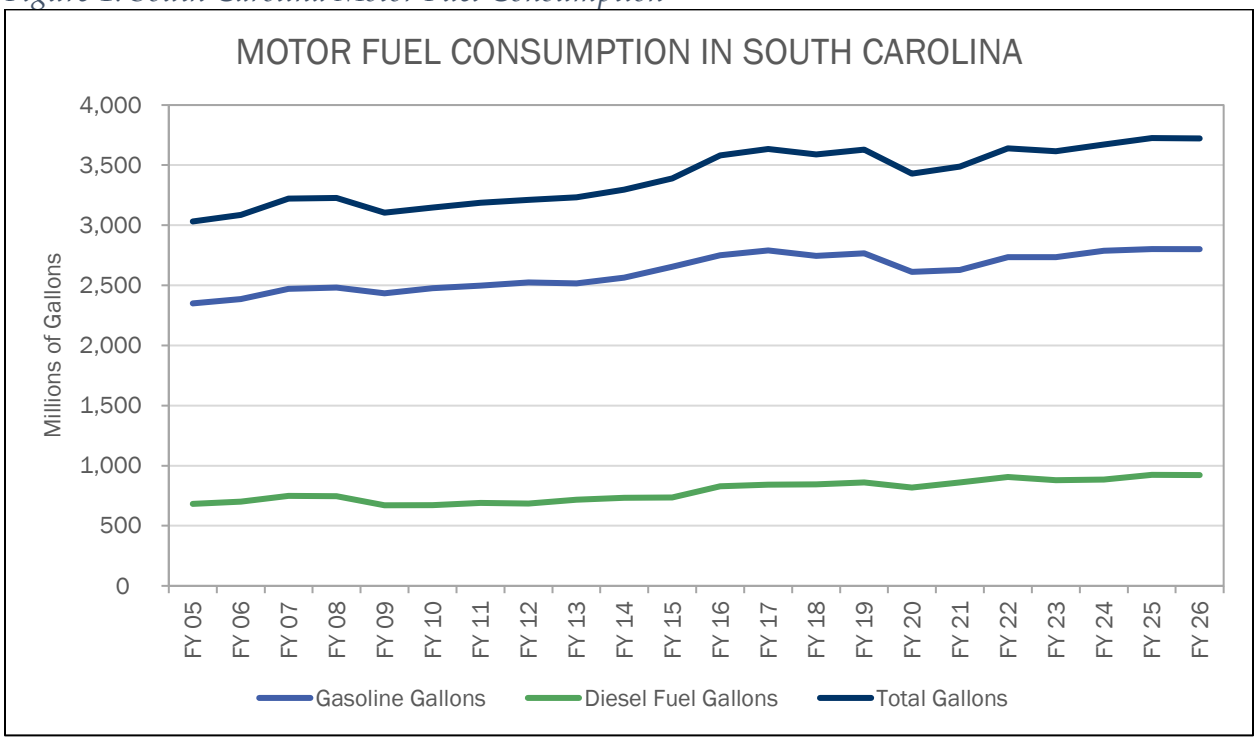


Figure 2. Summary of Motor Fuel Gallons Subject to the User Fees

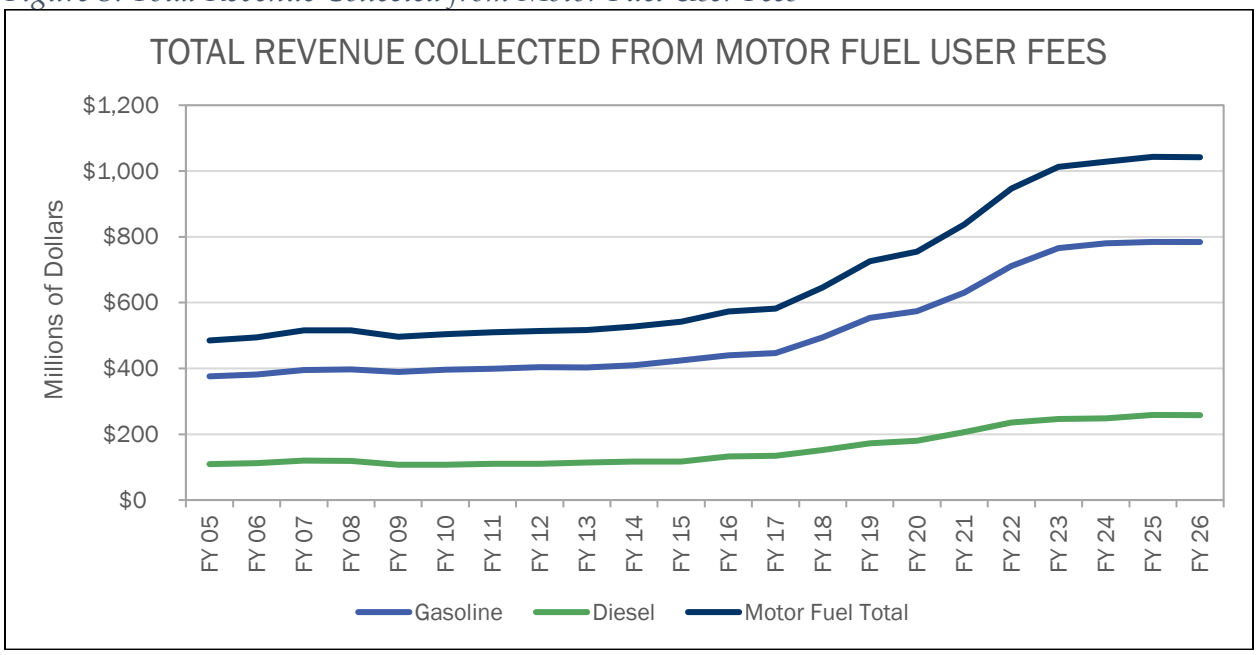
Fiscal Year	Gasoline (Billions of Gallons)	Diesel Fuel (Billions of Gallons)	Total Motor Fuel (Billions of Gallons)
2010-11	2.497	0.739	3.353
2011-12	2.523	0.723	3.357
2012-13	2.517	0.756	3.409
2013-14	2.563	0.775	3.438
2014-15	2.655	0.790	3.535
2015-16	2.751	0.872	3.742
2016-17	2.791	0.893	3.771
2017-18	2.745	0.895	3.781
2018-19	2.767	0.902	3.787
2019-20	2.611	0.853	3.544
2020-21	2.629	0.908	3.659
2021-22	2.737	0.901	3.852
2022-23	2.735	0.880	3.615
2023-24	2.787	0.886	3.673
2024-25	2.802	0.924	3.725
2025-26	2.801	0.921	3.722

Due to changes in the fee over time, revenue is comprised of three main components in South Carolina:

- a 16 cents-per-gallon "base" fee,
- an additional fee component that increased by 2 cents each year from FY 2017-18 through FY 2022-23, and
- a 0.75 cents-per-gallon environmental and inspection fee.

The current total fee for FY 2025-26 is 28.75 cents per gallon. Further discussion on these components, the allocations of fee revenue, and the tax rate schedule can be found in the Appendix. Figure 3 depicts the revenue collected from motor fuel user fees without the 0.75 cents environmental and inspection fee.

Figure 3. Total Revenue Collected from Motor Fuel User Fees



Note: These amounts exclude the $0.75 environmental and inspection fees.

IV. Projections for Fiscal Years 2026-27 and 2027-28

Projections for motor fuel revenue are based upon two regression models, one for gasoline and one for diesel fuel. Gasoline demand is predicted using the lagged three-year moving average of average fuel economy, per capita personal income, and the amount of the motor fuel user fee. Diesel demand is predicted using Gross State Product (GSP) in the Trade, Transportation, and Utilities sector, the Industrial Production Index (IPI) of Mining, and the amount of the diesel fuel user fee. Additional details for these models are available in the Appendix.

Projecting motor fuel consumption for FY 2026-27 and FY 2027-28 requires projections for most of the input variables for the two models. The accuracy of the forecasts of these variables affects the ability of the models to forecast motor fuel revenue. To account for the risk involved in forecasting motor fuel revenue based on forecasted input variables, we have provided forecast prediction ranges for both gasoline and diesel consumption.

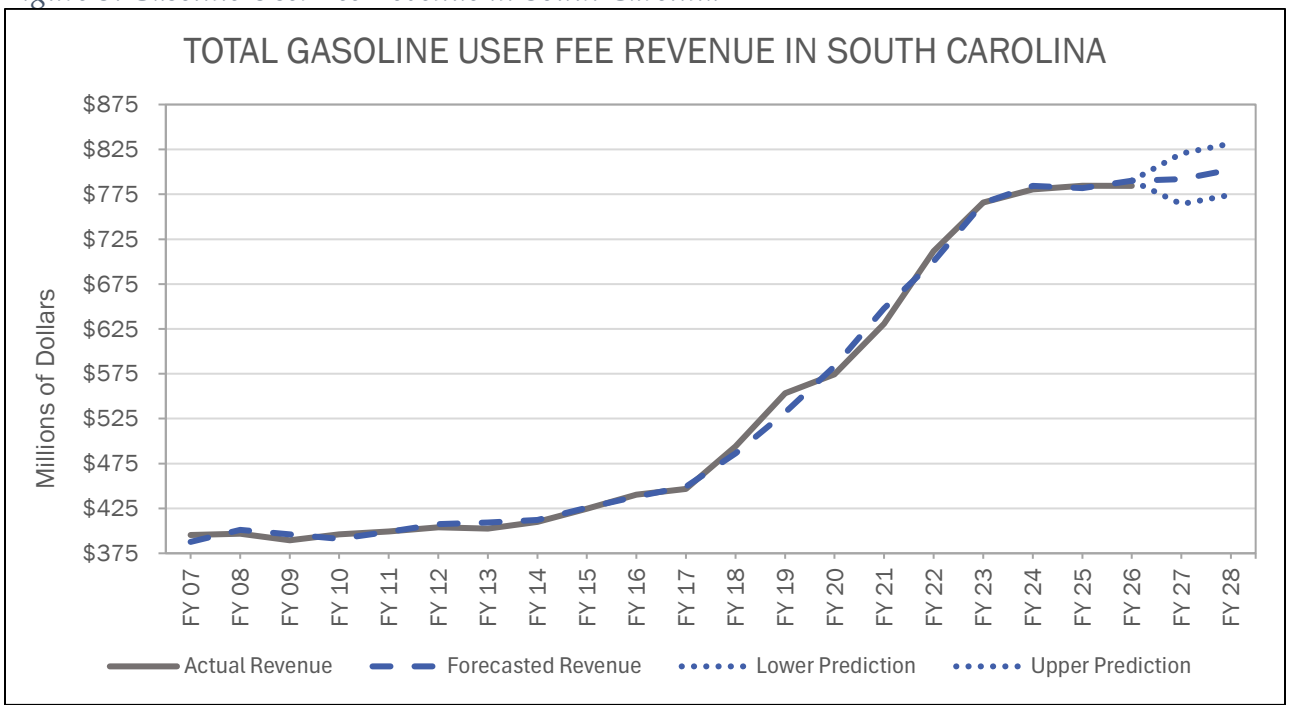
Based upon the model, we estimate motor fuel fee revenue for gasoline and its corresponding forecast prediction range for FY 2026-27 and FY 2027-28 in Figures 4 and 5 as follows:

Figure 4. Gasoline User Fee Revenue Projections and Forecast Ranges

Fiscal Year	Gasoline User Fee Revenue Projections (Millions)	Gasoline User Fee Revenue Forecast Range* (Millions)
2025-26 (actual)	$784.328	N/A
2026-27	$791.775	$764.112 – 820.440
2027-28	$802.520	$774.481 – 831.573

**(95% Prediction Intervals)*

Figure 5. Gasoline User Fee Revenue in South Carolina



Based upon the model, we estimate motor fuel fee revenue for diesel fuel and its corresponding forecast range for FY 2026-27 and FY 2027-28 in Figures 6 and 7 as follows:

Figure 6. Diesel Fuel User Fee Revenue Projections and Forecast Ranges

Fiscal Year	Diesel User Fee Revenue Projections (Millions)	Diesel User Fee Revenue Forecast Range* (Millions)
2025-26 (actual)	$257.935	N/A
2026-27	$258.933	$245.782 – 272.788
2027-28	$257.971	$244.868 – 271.775

**(95% Prediction Intervals)*

Figure 7. Diesel Fuel User Fee Revenue in South Carolina

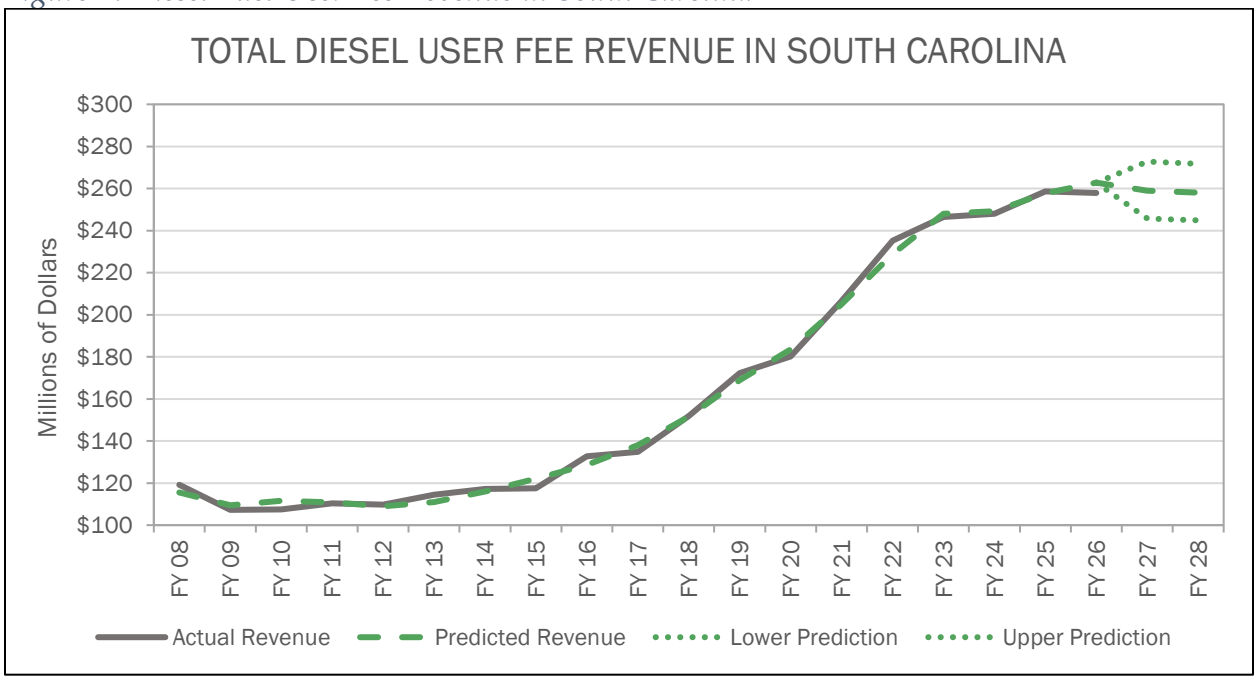


Figure 8. Motor Fuel User Fee Revenue History and Estimates

Fiscal Year	Fee Per Gallon	Gasoline Revenue		Diesel Revenue		Total Motor Fuel Revenue	
	Cents	Dollars	% Change	Dollars	% Change	Dollars	% Change
2010-11	16	$399,487,621	0.81%	$110,325,004	2.68%	$509,812,625	1.21%
2011-12	16	$403,834,314	1.09%	$109,744,365	(0.53%)	$513,578,679	0.74%
2012-13	16	$402,667,179	(0.29%)	$114,511,278	4.34%	$517,178,457	0.70%
2013-14	16	$410,108,790	1.85%	$117,137,065	2.29%	$527,245,855	1.95%
2014-15	16	$424,754,788	3.57%	$117,457,502	0.27%	$542,212,290	2.84%
2015-16	16	$440,218,179	3.64%	$132,645,553	12.93%	$572,863,733	5.65%
2016-17	16	$446,608,833	1.45%	$134,870,908	1.68%	$581,479,741	1.50%
2017-18	18	$494,128,760	10.64%	$151,935,565	12.65%	$646,064,325	11.11%
2018-19	20	$553,345,125	11.98%	$172,225,934	13.35%	$725,571,058	12.31%
2019-20	22	$574,486,486	3.82%	$180,172,095	4.61%	$754,658,582	4.01%
2020-21	24	$630,855,710	9.81%	$206,466,083	14.59%	$837,321,793	10.95%
2021-22	26	$711,666,268	12.81%	$235,278,106	13.95%	$946,944,374	13.09%
2022-23	28	$765,912,026	7.62%	$246,459,165	4.75%	$1,012,287,036	6.90%
2023-24	28	$780,367,239	1.89%	$248,003,945	0.63%	$1,028,371,185	1.58%
2024-25	28	$784,502,179	0.53%	$258,616,974	4.28%	$1,043,119,152	1.43%
2025-26	28	$784,328,068	-0.02%	$257,934,913	-0.26%	$1,042,262,981	-0.08%
2026-27e	28	$791,774,995	0.95%	$258,933,200	0.39%	$1,050,708,194	0.81%
2027-28e	28	$802,519,518	1.36%	$257,971,111	-0.37%	$1,060,490,629	0.93%

e-Estimates

Note: Figures do not include the 0.75 cents per gallon environmental and inspection fees.

V. APPENDIX

SOUTH CAROLINA MOTOR FUEL TAX RATES

The following table gives an overview of how the motor fuel tax rate has changed since it was first enacted. The rate increased to 28 cents on July 1, 2022, the last year of the increases enacted in 2017.

Figure 9. South Carolina Motor Fuel Tax Rate Schedule

Year	Tax	Legislative Enactment
1922	2 cents	Act 494 of 1922
1923	3 cents	Act 146 of 1923
1925	5 cents	Act 34 of 1925
1929	6 cents	Act 102 of 1929
1958	7 cents	Act 855 of 1958
1972	8 cents	Act 1575 of 1972
1977	9 cents	Act 141 of 1977
1979	10 cents	Act 197 of 1979
1980	11 cents	Act 506 of 1980
1981	13 cents	Act 177 of 1981
1987	15 cents	Act 197 of 1987
1995	16 cents	Act 136 of 1995
2017	18 cents	Act 40 of 2017
2018	20 cents	Act 40 of 2017
2019	22 cents	Act 40 of 2017
2020	24 cents	Act 40 of 2017
2021	26 cents	Act 40 of 2017
2022	28 cents	Act 40 of 2017

SOUTH CAROLINA MOTOR FUEL FEE DISTRIBUTION

Funds collected from the motor fuel user fee are distributed among various agencies and funds. Act 40 of 2017 set a yearly increase of the fee through FY 2022-23 and restructured the way the fee revenue is allocated. Figure 10 shows a breakdown of the current distributions.

Figure 10. Motor Fuel User Fee Distribution as of July 1, 2022

Gasoline Revenue Distribution	Code of Laws Section
$18 million of the first 3¢ to the State Non-Federal Aid Highway Fund	§12-28-2910
13¢ component	-
0.13¢ (1% of 13¢) to DNR	§12-28-2730 (A)
12.87¢	-
2.66¢ to "C" Funds	§12-28-2740 (A)
10.11¢ to DOT	§12-28-2720
0.25¢ of this amount to Mass Transit	§12-28-2725
12¢ component[1]	-
1.33¢ to "C" Funds[2]	§12-28-2740 (A)
10.67¢ to Infrastructure Maintenance Trust Fund[3]	§12-28-310 (D)
Remaining 3¢ to the State Highway Fund	§12-28-2750

Diesel Revenue Distribution	Code of Laws Section
12¢ to Infrastructure Maintenance Trust Fund[1]	§12-28-310 (D)
Remaining 16¢ to the State Highway Fund	§12-28-2750

Total Motor Fuel User Fee[3]: 28¢	**§12-28-310 (Act 40 of 2017)**
Total Environmental and Inspection Fee: 0.75¢	**§12-28-2355**
0.25¢ Inspection Fee to DOT State Non-Federal Aid Highway Fund	§12-28-2355 (C) (Act 40 of 2017)
0.50¢ Environmental Impact Fee to DHEC	§12-28-2355 (B)

1 – Motor fuel user fee increased by 2¢ per year for six years beginning July 1, 2017, for a total increase of 12¢ by July 1, 2022.

2 - Pursuant to Proviso 86.1 of the FY 2023-24 Appropriations Act, the increase in "C" Funds is taken from the 2¢ increase per year of the gasoline user fee.

3 - Pursuant to Proviso 86.1 of the FY 2023-24 Appropriations Act, the Motor Fuel User Fee increase on gasoline pursuant to §12-28-310 is reduced by the increase in the allocation to "C" Funds. (See footnote 1)

GASOLINE

The general equation for gasoline user fee revenue may be written as:

$$\ln R_t = f(lagE_t, \ln I_t, F_t),$$

where

R_t is the amount of per capita gasoline user fee revenue at time t,
$lagE_t$ is the lagged three-year moving average of average fuel economy at time t,
I_t is per capita personal income at time t,
F_t is the motor fuel user fee at time t.

After estimating the model using annual data from fiscal year 2008 to fiscal year 2026, the following model was produced:

$$\ln R_t = 2.61 - 0.03 \text{ lag } E_t + 0.59 \ln I_t + 2.65 \ln F_t$$

Figure 11. Gasoline Demand Model Statistics and Fit

Regression Statistics	
Multiple R	0.997
R Square	0.995
Adjusted R Square	0.994
Standard Error	0.017
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.8312	0.2771	984.5378	2.3652E-18
Residual	16	0.0045	0.0003		
Total	19	0.8357			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.612	0.244	10.687	1.082E-08	2.094	3.130
lag E_t	-0.029	0.007	-4.233	0.001	-0.043	-0.014
ln I_t	0.586	0.119	4.931	0.002	0.334	0.838
F_t	2.650	0.309	8.563	2.269E-07	1.994	3.306

DIESEL

The general equation for diesel fuel user fee revenue may be written as:

$$\ln R_t = f(\ln GSP_t, \ln IPI_t, F_t),$$

where

R_t is total diesel fuel revenue at time t,
GSP_t is the level of Gross State Product in the Trade, Transportation, and Utilities sector in South Carolina at time t,
IPI_t is the Industrial Production Index of Mining in South Carolina at time t, and
F_t is the motor fuel user fee at time t.

After estimating the model using annual data from fiscal year 2008 to fiscal year 2026, the following model was produced:

$$\ln R_t = 13.06 + 0.30 \ln GSP_t + 0.47 \ln IPI_{t-1} + 2.60 F_t$$

Figure 12. Diesel Demand Model Statistics and Fit

Regression Statistics	
Multiple R	0.9979
R Square	0.9958
Adjusted R Square	0.9949
Standard Error	0.0245
Observations	19

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	2.1028	0.7009	1171.984	5.2658E-18
Residual	15	0.0090	0.0006		
Total	18	2.1118			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	13.0636	0.6297	20.7465	1.85E-12	11.7214	14.4057
ln GSP TTU	0.2957	0.0786	3.7630	0.0019	0.1282	0.4632
ln IPI mining	0.4661	0.0687	6.7831	6.17E-06	0.3197	0.6126
Tax	2.6013	0.3703	7.0251	4.1E-06	1.8121	3.3906

DATA SOURCES

Motor Fuel User Fee Revenue: S.C. Department of Transportation

Population Estimates: S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)

Personal Income: S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)

Fuel Economy:
U.S. Environmental Protection Agency (EPA)

SC GSP of trade, transportation, and utilities (TTU): S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)

IPI of Mining: S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)

Population Forecasts: S&P Global Market Intelligence
S&P State Analysis Forecast Data, Quarterly Data, South Carolina (6/30/26)

Personal Income Forecasts: S&P Global Market Intelligence
S&P State Analysis Forecast Data, Quarterly Data, South Carolina (6/30/26)

Fuel Economy Forecasts:
Based on the ratio of fuel economy to Corporate Average Fuel Economy (CAFE) Standards from the U.S. EPA, using fuel economy growth

GSP of TTU Forecasts: S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)

IPI of Mining Forecasts: S&P Global Market Intelligence
State Analysis Data, Quarterly, South Carolina (6/30/26)