2022 Clean Fuels Forecast Review

Introduction

In the Fall 2021, the Office of Economic Analysis released its Clean Fuels Forecast for the 2022 compliance period. The forecast projected the volumes of fossil and alternative fuels reported to the Clean Fuels program at the Department of Environmental Quality, as well as the associated deficits and credits. This briefing paper assesses the performance of that forecast. It should be noted that the forecast was developed in the wake of the Covid-19 pandemic and entailed unprecedented uncertainty.

Reported Volumes

Table 1 presents both the projected and actual volumes of fuels reported to the Clean Fuels program.

Table 1

2022 Clean Fuels Forecast Review

(Mil. gallons, percent)	Actual Reported	Forecast	Difference
Conventional Gasoline	1,358.9	1407.2	-48.3
Ethanol	149.7	158.1	-8.4
Ethanol Blend Rate	9.9%	10.1%	
Blendstock	1,508.6	1,565.3	-56.7
Fossil Diesel	755.3	687.0	68.3
Biodiesel	81.6	86.4	-4.7
Biodiesel Blend Rate	9.2%	10.5%	
Renewable Diesel	46.6	49.4	-2.8
Renew diesel Blend Rate	5.3%	6.0%	
Total Diesel	883.6	822.7	60.8
Electricity (on-road)	6.9	6.9	0.0
Electricity (off-road)	6.3	8.0	-1.7
Fossil Natural Gas	0.2	0.6	-0.4
Biogas	3.7	5.6	-1.8
Biogas Blend Rate	94.0%	90.0%	
Total Natural Gas	4.0	6.2	-2.2
Propane	3.2	3.8	-0.5

The amount of gasoline blendstock, including ethanol, reported to the program was somewhat less than expected. This was due, in part, to elevated gas prices relative to the levels present at the time of the forecast.

Total diesel, including the blending of biofuel alternatives, exceeded the forecast significantly. This was entirely due to fossil diesel coming in above expectations as biodiesel and renewable diesel both fell short of projections.

The forecast for the volume of reported on-road electricity equaled the forecast, while expected off-road electricity failed to materialize in full.

While the forecast for blending of biogas exceeded expectations, reporting for natural gas overall fell significantly short of projections. Finally, the forecast for liquid petroleum gas (propane) was substantially below the forecast.

Credits and Deficits

Table 2 presents a comparison of the forecast for credits and deficits to the actual values.

Table 2

2022 Credit/Deficit Forecast Review

		Actual	Forecast	Difference
Deficits	Gasoline	-1,210,616	-1,204,778	-5,838
	Diesel	-718,117	-640,237	-77,880
Deficit Total		**-1,928,734**	**-1,845,015**	**-83,718**
Credits	Ethanol	507,926	601,159	-93,232
	Biodiesel	543,579	678,936	-135,357
	Renewable Diesel	333,424	377,990	-44,566
	Electricity, on-road	221,021	214,627	6,394
	Electricity, off-road	167,528	41,027	126,501
	Natural Gas	33,670	26,812	6,858
	Propane	5,338	4,137	1,201
Credit Total		**1,812,487**	**1,944,689**	**-132,202**
2021 Net Credits/Deficits		**-116,247**	**99,674**	**-215,921**

The majority of the deviation in net credits resulted from significant departures from the assumptions regarding carbon intensities (see table 3) for ethanol, biodiesel and renewable diesel, as well as the modest forecast errors for the three primary biofuels. Off-road electricity was the only alternative fuel type that significantly exceeded projections.

Carbon Intensities

Table 3 presents the forecast assumptions, as well as the actual weight-average values, for the carbon intensities for the three major biofuels. In all cases, the actual values exceeded the assumed values by a significant margin.

Table 3

2022 Carbon Intensity Review			
	Actual	**Forecast**	**Difference**
Ethanol	53.4	46.50	6.9
Biodiesel	41.5	31.50	10.0
Renewable Diesel	39.2	34.75	4.4