

2020 Clean Fuels Forecast Review

This brief reviews the 2020 Clean Fuels forecast in light of the actual 2020 data now available. Oregon Revised Statutes Chapter 468A, Section 272 authorizes the Office of Economic Analysis (OEA), with substantial assistance from the Department of Environmental Quality, to assess the availability of fossil and alternative fuels to Oregon. In particular, the forecast is to determine whether fuel supply will be sufficient to generate the necessary number of carbon reduction credits from alternative fuels (ethanol, electricity, and diesel substitutes - including biodiesel, renewable diesel, natural gas, and propane) to meet the scheduled applicable low carbon fuel standards for the compliance period. The original carbon reduction law required a ten percent reduction by 2025. Executive Order 20-04 increased the target to a twenty percent reduction in carbon intensities by 2030¹.

Section one looks at the projected volumes of fossil and alternative fuels, while section two reviews the carbon intensities of biofuels relative to the assumptions made in the 2020 forecast. Section three examines the deficits and credits generated in comparison to the forecast. It should be noted that the latest full year of available data for the Clean Fuels program at the time of the publication of the 2020 forecast was 2018.

Section One: Reported Volumes

(Mil. gallons, percent)	2018 Actual	2019 Actual	2020 Actual	2020 Forecast	Deviation (gallons)
Conventional Gasoline	1,539.4	1,565.4	1,277.6	1,546.3	-268.7
Ethanol	172.6	174.0	141.2	174.1	-32.9
Ethanol Blend Rate	10.1%	10.0%	10.0%	10.1%	
Blendstock	1,712.1	1,739.4	1,418.8	1,720.4	-301.6
Fossil Diesel	716.5	719.3	671.8	683.2	-11.5
Biodiesel	51.6	60.1	68.5	52.6	15.9
Biodiesel Blend Rate	6.7%	7.5%	9.0%	6.9%	
Renewable Diesel	1.2	16.8	18.3	26.7	-8.4
Renew diesel Blend Rate	0.2%	2.1%	2.4%	3.5%	
Total Diesel	769.4	796.1	758.6	762.5	-3.9
Electricity (on-road)*	2.2	2.9	3.5	3.5	0.0
Electricity (off-road)	1.7	2.2	3.2	N/A	
Fossil Natural Gas	1.4	1.2	0.8	1.1	-0.3
Biogas	1.7	2.2	2.9	2.5	0.3
Biogas Blend Rate	55.6%	65.3%	78.9%	70.0%	
Total Natural Gas	3.1	3.4	3.7	3.6	0.0
Propane	0.7	2.1	1.8	7.3	-5.4
* Includes estimate for residential charging.					

Table one presents the reported volumes of fossil and alternative fuels for the years 2018-20, as well as the 2020 projections published by the Office of Economic Analysis. The effect of the Covid-19 pandemic is evident across most

¹ https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

of the fuel types. This forecast was published in October 2019, and thus the pandemic was not factored into the forecast.

Total gasoline (including ethanol) reported to the program was expected to increase 0.7 percent between 2018 and 2020. In actuality, gasoline fell 17.0 percent due to the pandemic, resulting in a forecast error of -268.7 million gallons. The forecast for ethanol was based on a 10.1 percent blend rate assumption. The actual blend rate was 10 percent. Actual reported ethanol fell short the forecast by 32.9 million gallons because of both factors.

Total diesel (including biodiesel and renewable diesel) reported was projected to fall 0.9 percent over the two-year forecast horizon. In fact, diesel fell 1.4 percent, producing a forecast error of -3.9 million gallons. The forecast for biodiesel was based on a blend rate assumption of 6.9 percent. The actual blend rate was 9.0 percent, producing a deviation from the forecast of 15.9 million gallons. Renewable diesel was projected using a blend rate assumption of 3.5 percent, while the actual blend rate came in at 2.4 percent. The actual amount of renewable diesel reported fell below forecast by 8.4 million gallons.

In gasoline gallon equivalents, electricity consumed in electric vehicles equaled 3.5 million gasoline gallon equivalents, matching the forecast. Electricity reported for off-road use was not forecast directly, but rather the credits associated are illustrated in section three.

Total natural gas used for transportation was expected to total 3.6 million gallons. The actual amount of natural gas reported was 3.7 million gallons, for a negligible forecast deviation. Renewable natural gas, or biogas, was projected using a blend rate assumption of 70 percent. The actual blend rate was 78.9 percent, lifting the actual reported volume of biogas modestly above forecast.

Finally, reported liquefied petroleum gas, or propane, was predicted to equal 7.3 million gallons for 2020. The actual amount report was 1.8 million gallons.

Section Two: Carbon Intensities for Biofuels

The amount of credits that would be generated by the projected volumes of the three biofuels (ethanol, biodiesel and renewable diesel) depend on the expected carbon intensities that were assumed in the forecast. Table 2 compares the forecast assumptions with the actual carbon intensities that were realized in the reported data.

	Actual (weighted avg.)	2020 Forecast Assumption
Ethanol	54.76	57.76
Biodiesel	42.14	35.40
Renewable Diesel	31.64	29.17

For ethanol, the realized carbon intensity for the volume reported in 2020 was significantly lower than that assumed in the forecast. The actual carbon intensities for biodiesel and renewable diesel were somewhat higher than the forecast assumption.

Section Three: Deficits and Credits

Table 3 presents the deficits and credits generated by the reported fossil and alternative fuels, as well as the projections published in the 2020 forecast.

		2020 Actual	2020 Forecast	Deviation
Deficits	Gasoline	-751,730	-857,916	106,185.7
	Diesel	-417,216	-410,701	-6,515.0
Deficit Total		-1,168,947	-1,268,617	99,670.7
Credits	Ethanol	488,186	537,140	-48,953.2
	Biodiesel	472,955	403,946	69,008.4
	Renewable Diesel	154,578	232,191	-77,613.8
	Electricity, on-road	107,506	92,317	15,188.7
	Electricity, off-road	29,240	25,784	3,456.5
	Natural Gas	13,232	17,896	-4,664.2
	Propane	4,439	9,629	-5,190.1
Credit Total		1,270,136	1,318,903	-48,767.6
2020 Net Credits/Deficits		101,189	50,286	50,903.0

As noted in section one, actual reported motor gasoline fell far short of the forecast due to the Covid-19 pandemic. As such, actual deficits generated by gasoline and diesel fuel fell far short of projections. For alternative fuels, as in the prior year there were a mix of over- and under-forecast values. However, ethanol and renewable diesel fell significantly short of the expected number of credits, bringing the total actual number of credits well short of forecast. All told, net credits were twice the number predicted in the 2020 forecast.

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