

Table 10.3 Fuel Ethanol Overview, 1981-2011

Year	Feed-stock ¹ Trillion Btu	Losses and Co-products ² Trillion Btu	Denaturant ³ Thousand Barrels	Production ⁴			Trade ⁴			Stocks, ⁴ End of Year Thousand Barrels	Stock Change ^{4,6} Thousand Barrels	Consumption ⁴			Consumption Minus Denaturant ⁷ Trillion Btu
				Thousand Barrels	Million Gallons	Trillion Btu	Imports	Exports	Net Imports ⁵			Thousand Barrels	Million Gallons	Trillion Btu	
				Thousand Barrels	Million Gallons	Trillion Btu	Thousand Barrels	Thousand Barrels	Thousand Barrels			Thousand Barrels	Million Gallons	Trillion Btu	
1981	13	6	40	1,978	83	7	NA	NA	NA	NA	NA	1,978	83	7	7
1982	34	16	107	5,369	225	19	NA	NA	NA	NA	NA	5,369	225	19	19
1983	63	29	198	9,890	415	35	NA	NA	NA	NA	NA	9,890	415	35	34
1984	77	35	243	12,150	510	43	NA	NA	NA	NA	NA	12,150	510	43	42
1985	93	42	294	14,693	617	52	NA	NA	NA	NA	NA	14,693	617	52	51
1986	107	48	339	16,954	712	60	NA	NA	NA	NA	NA	16,954	712	60	59
1987	123	55	390	19,497	819	69	NA	NA	NA	NA	NA	19,497	819	69	68
1988	124	55	396	19,780	831	70	NA	NA	NA	NA	NA	19,780	831	70	69
1989	125	56	401	20,062	843	71	NA	NA	NA	NA	NA	20,062	843	71	70
1990	111	49	356	17,802	748	63	NA	NA	NA	NA	NA	17,802	748	63	62
1991	128	56	413	20,627	866	73	NA	NA	NA	NA	NA	20,627	866	73	72
1992	145	64	469	23,453	985	84	NA	NA	NA	1,791	NA	23,453	985	84	81
1993	169	74	550	27,484	1,154	98	244	NA	244	2,114	323	27,405	1,151	98	95
1994	188	82	614	30,689	1,289	109	279	NA	279	2,393	279	30,689	1,289	109	106
1995	198	86	647	32,325	1,358	115	387	NA	387	2,186	-207	32,919	1,383	117	114
1996	141	61	464	23,178	973	83	313	NA	313	2,065	-121	23,612	992	84	82
1997	186	80	613	30,674	1,288	109	85	NA	85	2,925	860	29,899	1,256	107	104
1998	202	86	669	33,453	1,405	119	66	NA	66	3,406	481	33,038	1,388	118	115
1999	211	90	698	34,881	1,465	124	87	NA	87	4,024	618	34,350	1,443	122	119
2000	233	99	773	38,627	1,622	138	116	NA	116	3,400	-624	39,367	1,653	140	137
2001	253	108	841	42,028	1,765	150	315	NA	315	4,298	898	41,445	1,741	148	144
2002	307	130	1,019	50,956	2,140	182	306	NA	306	6,200	1,902	49,360	2,073	176	171
2003	400	169	1,335	66,772	2,804	238	292	NA	292	5,978	-222	67,286	2,826	240	233
2004	484	203	1,621	81,058	3,404	289	3,542	NA	3,542	6,002	24	84,576	3,552	301	293
2005	552	230	1,859	92,961	3,904	331	3,234	NA	3,234	5,563	-439	96,634	4,059	344	335
2006	688	285	2,326	116,294	4,884	414	17,408	NA	17,408	8,760	3,197	130,505	5,481	465	453
2007	914	376	3,105	155,263	6,521	553	10,457	NA	10,457	10,535	1,775	163,945	6,886	584	569
2008	1,300	531	4,433	221,637	9,309	790	12,610	NA	12,610	14,226	3,691	230,556	9,683	821	800
2009	1,517	616	5,688	260,424	10,938	928	4,720	NA	4,720	16,594	2,368	262,776	11,037	936	910
2010	R1,839	R742	R6,506	R316,617	R13,298	R1,127	R373	R9,488	R-9,115	R17,941	R1,347	R306,155	R12,858	R1,090	R1,061
2011 ^P	1,922	770	6,636	332,107	13,948	1,182	3,135	28,457	-25,322	18,261	8321	306,464	12,871	1,091	1,063

¹ Total corn and other biomass inputs to the production of undenatured ethanol used for fuel ethanol.
² Losses and co-products from the production of fuel ethanol. Does not include natural gas, electricity, and other non-biomass energy used in the production of fuel ethanol—these are included in the industrial sector consumption statistics for the appropriate energy source.
³ The amount of denaturant in fuel ethanol produced.
⁴ Includes denaturant.
⁵ Net imports equal imports minus exports.
⁶ A negative value indicates a decrease in stocks and a positive value indicates an increase.
⁷ Consumption of fuel ethanol minus denaturant. Data for fuel ethanol minus denaturant are used to develop data for "Renewable Energy/Biomass" in Tables 10.1–10.2b, as well as in Sections 1 and 2.
⁸ Derived from the preliminary 2010 stocks value (17,940 thousand barrels), not the final 2010 value (17,941 thousand barrels) that is shown under "Stocks."
R=Revised. P=Preliminary. NA=Not available.
Notes: • Fuel ethanol data in thousand barrels are converted to million gallons by multiplying by 0.042, and are converted to Btu by multiplying by the approximate heat content of fuel ethanol—see Table A3.
• Through 1980, data are not available. For 1981–1992, data are estimates. For 1993–2008, only data for feedstock, losses and co-products, and denaturant are estimates. Beginning in 2009, only data for feedstock, and losses and co-products, are estimates. • See "Denaturant," "Ethanol," "Fuel Ethanol," and "Fuel Ethanol Minus Denaturant" in Glossary. • Totals may not equal sum of components due to independent rounding.
Web Pages: • See <http://www.eia.gov/totalenergy/data/monthly/#renewable> for updated monthly and annual data. • See <http://www.eia.gov/petroleum/supply/monthly/> for related information.
Sources: **Feedstock:** Calculated as fuel ethanol production (in thousand barrels) minus denaturant, and then multiplied by the fuel ethanol feedstock factor—see Table A3. **Losses and Co-products:** Calculated as fuel ethanol feedstock plus denaturant minus fuel ethanol production. **Denaturant:** • 1981–2008—Data in thousand barrels for petroleum denaturant in fuel ethanol produced are estimated as 2 percent of fuel ethanol production; these data are converted to Btu by multiplying by 4.645 million Btu per barrel (the estimated quantity-weighted factor of pentanes plus and conventional motor gasoline used as denaturant).
• 2009 forward—U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)*, annual

report, Table 1, and *Petroleum Supply Monthly (PSM)*, monthly reports, Table 1. Data in thousand barrels for net production of pentanes plus at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 4.620 million Btu per barrel (the approximate heat content of pentanes plus). Data in thousand barrels for net production of conventional motor gasoline and motor gasoline blending components at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 5.253 million Btu per barrel (the approximate heat content of conventional motor gasoline). Total denaturant is the sum of the values for pentanes plus, conventional motor gasoline, and motor gasoline blending components. **Production:** • 1981–1992—Fuel ethanol production is assumed to equal fuel ethanol consumption—see sources for "Consumption."
• 1993–2004—Calculated as fuel ethanol consumption plus fuel ethanol stock change minus fuel ethanol net imports. These data differ slightly from the original production data from EIA, Form EIA-819, "Monthly Oxygenate Report," and predecessor form, which were not reconciled and updated to be consistent with the final balance. • 2005–2008—EIA, Form EIA-819, "Monthly Oxygenate Report." • 2009 and 2010—EIA, PSA, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.
• 2011—EIA, PSM (February 2012), Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants. **Trade, Stocks, and Stock Change:** • 1992–2010—EIA, PSA, annual reports, Table 1.
• 2011—EIA, PSM (February 2012), Table 1. **Consumption:** • 1981–1989—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10; and interpolated values for 1982, 1983, 1985, 1986, and 1988.
• 1990–1992—EIA, *Estimates of U.S. Biomass Energy Consumption 1992*, Table D2; and interpolated value for 1991. • 1993–2004—EIA, PSA, annual reports, Tables 2 and 16. Calculated as 10 percent of oxygenated finished motor gasoline field production (Table 2), plus fuel ethanol refinery input (Table 16).
• 2005–2008—EIA, PSA, annual reports, Tables 1 and 15. Calculated as motor gasoline blending components adjustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15). • 2009 and 2010—EIA, PSA, Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments. • 2011—EIA, PSM (February 2012), Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments.
Consumption Minus Denaturant: Calculated as fuel ethanol consumption minus the amount of denaturant in fuel ethanol consumed. Denaturant in fuel ethanol consumed is estimated by multiplying denaturant in fuel ethanol produced by the fuel ethanol consumption-to-production ratio.