

Supply Impacts of an MTBE Ban

Table 1. Emission Related Chemical and Physical Properties of Gasoline Blend Components

Properties	MTBE	Ethanol	LSR - C ₅ -200	Isomtrate	Alkylate	Reformate	FCC Gasoline
Octane: (R+M)/2	110	113	63	83	92-94	86-94	86
RVP: psi.....	8	see note	10	12	4-6	4	6-7
E200: vol%.....	100	100	100	100	30	0	47
E300: vol%.....	100	100	100	100	94	70-80	77
Benzene: vol%.....	0	0	.01-3.0	0	0.1	0.2-3.0	0.5-1.0
Aromatics: vol%	0	0	.01-3.0	0	0.4	50-65	20-30
Olefins: vol%.....	0	0	0	0	0.5	0	25-40
Sulfur: ppm	0	0	0-200	0	0	0-25	100-1,500
Oxygen: wt%.....	18.2	34.7	0	0	0	0	0

Note: Ethanol exhibits a high vapor pressure when blended with the hydrocarbons of a gasoline blend. The RVP impact of the ethanol is quite non-linear. The addition of 5 percent ethanol to a base 9 RVP gasoline will raise the RVP by slightly over 1 psi, while the addition of 10 percent ethanol will increase the mixture a little less than 1psi.

Definitions of abbreviations and technical terms:

MTBE = methyl tertiary butyl ether;
 LSR = light straight run gasoline
 FCC = fluid catalytic cracking;
 RVP = Reid vapor pressure;
 ppm = parts per million;
 psi = pounds per square inch;
 vol% = volume percent; wt% = weight percent.

Sources: American Petroleum Institute. *Alcohols and Ethers: A Technical Assessment of Their Application as Fuels and Fuel Components* (Washington, DC: API Publication 4261); and Piel, W.J. and R.X. Thomas. "Oxygenates for reformulated gasoline," *Hydrocarbon Processing* (July 1990), p. 68.

**Table 2. Summary of Complex Model
RFG Per Gallon Performance Standards for Phase II**

Pollutant	Region (1)	Season	Standard
VOC(2)	Region 2 (Northern)	VOC control(3)	≥ 27.5% reduction
	Region 1 (Southern)	VOC control	≥ 25.9% reduction
Toxics	All	All	≥ 20.0% reduction
NOx	All	VOC control	≥ 5.5% reduction
Benzene (percent by volume)			≤ 1.0

(1)As defined in 40 CFR 80.71, VOC Control Region 1 covers: Alabama, Arizona, Arkansas, California, Colorado, District of Columbia, Florida, Georgia, Kansas, Louisiana, Maryland, Mississippi, Missouri, Nevada, New Mexico, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, and Virginia. VOC Control Region 2 covers: Connecticut, Delaware, Idaho, Illinois, Indiana, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

(2) 66 FR 37156; July 17, 2001 is the regulation that allows a small adjustment to VOC performance standard in the RFG areas of Chicago and Milwaukee for RFG blends that contain 10 percent by volume of ethanol. The VOC performance standard is a 27.4 percent reduction from the baseline fuel. For complying RFG in Chicago and Milwaukee, the adjusted standard is 25.4 percent.

(3) VOC control season refers to "High ozone season" as defined in 40 CFR 80.27(a)(1) and is the period from June 1 to September 15 for retail outlets and wholesale purchaser-consumers.

Source: 40 CFR 80.41(e)

Table 3. Summer Emission Effects of Replacing MTBE with Ethanol in Reformulated Gasoline

Property	Baseline Fuel	MTBE 11.2 Volume Percent		Ethanol 5.8 Volume Percent		Ethanol 10 Volume Percent		Federal RFG Emission Requirements
		Target Fuel Properties		Target Fuel Properties		Target Fuel Properties		
MTBE (wt% oxygen)	0	2.0		0.0		0.0		
ETBE (wt% oxygen)	0	0.0		0.0		0.0		
Ethanol (wt% oxygen)	0	0.0		2.0		3.5		
TAME (wt% oxygen)	0	0.0		0.0		0.0		
Sulfur (ppm)	339	132.0		140.0		133.8		
RVP (psi)	8.7	6.4		7.5		7.4		
E200 (%)	41	45.9		42.6		45.2		
E300 (%)	83	77.3		75.9		77.0		
Aromatics (vol%)	32	25.7		27.3		26.1		
Olefins (vol%)	9.2	9.1		9.6		9.2		
Benzene (vol%)	1.53	0.3		0.4		0.3		
		mg/mi	Percent Change from Baseline	mg/mi	Percent Change from Baseline	mg/mi	Percent Change from Baseline	
Exhaust VOC	907.0	790.9	-12.80	856.2	-5.60	822.7	-9.29	
Nonexhaust VOC	492.1	245.5	-50.11	326.2	-33.71	316.0	-35.78	
Total VOC	1,399.1	1,036.4	-25.92	1,182.4	-15.48	1,138.7	-18.61	
Exhaust benzene	53.5	28.6	-46.55	29.7	-44.60	26.9	-49.83	
Nonexhaust benzene	5.5	0.7	-87.26	1.0	-82.43	0.9	-83.58	
Acetaldehyde	4.4	4.2	-6.09	7.6	71.76	10.9	144.71	
Formaldehyde	9.7	11.8	22.08	10.7	10.40	10.8	10.97	
Butadiene	9.4	9.1	-3.27	9.6	2.14	8.8	-6.40	
POM	3.0	2.7	-12.80	2.9	-5.60	2.8	-9.29	
Total exhaust toxics	80.1	56.4	-29.65	60.4	-24.54	60.0	-25.06	
Total toxics	85.6	57.1	-33.35	61.4	-28.26	60.9	-28.82	
NO_x	1340.0	1231.3	-8.11	1243.6	-7.20	1234.5	-7.87	
VOC Reduction			-25.92		-15.48		-18.61	≥25.9-percent Reduction
Toxics Reduction			-33.35		-28.26		-28.82	≥20.0-percent Reduction
NO_x Reduction			-8.11		-7.20		-7.87	≥5.5-percent Reduction
Benzene Vol%		0.3		0.4		0.3		≤1.0 volume percent

Definition of abbreviations and technical terms:

wt% = weight percent;
 ppm = parts per million;
 psi = pounds per square inch;
 vol% = volume percent;
 VOC = volatility organic compounds;
 POM = polycyclic organic materials;
 mg/mi = milligrams per mile;
 MTBE = methyl tertiary butyl ether;
 ETBE = ethyl tertiary butyl ether;
 TAME = tertiary amyl methyl ether;
 RVP = Reid vapor pressure.

Source: Energy Information Administration.

Table 4. Gulf Coast Refinery Cases Developed by Stratco/Purvin & Gertz

Case	Gasoline Production		Pentane Sales BPD	Ethanol (MTBE) BPD	Isobutane Purchased BPD	Incremental Alkylate Production BPD	Process Capacity Changes*
	Pool Volume BPD	Change percent					
Base	103,455		0	(10,500)	0	Base	
II	96,661	-6.6	5,706	7,626	849	+2,734	1,3,4
III	96,542	-6.7	6,250	8,631	1,338	+3,661	1,3,4
IV	99,901	-3.4	1,641	6,740	2,839	+7,993	1,2,3,4

BPD = barrels per day

*Process Capacity Notes:

1. New light straight run depentanizer
2. New fluid catalytic cracking gasoline depentanizer
3. Expand olefin treating (mercaptan removal and selective hydrogenation)
4. Expand alkylation

Source: "Refining Options for MTBE-Free Gasoline" NPRA AM00-53, presented at NPRA's Annual Meeting in 2000. <http://www.stratco.com/pdf/RefiningOptionsPaper.pdf>.

Table 5. MTBE-Ban Case Analysis for RFG Production – Federal RFG Producing Refinery

	Base Case		Case 2		Case 3		Case 4	
	RFG Production with MTBE		MTBE Ban – Ethanol at 10%		MTBE Ban – Ethanol at 10% + Increased Alkylate Production		MTBE Ban – Ethanol at 5.8% + Purchase Alkylate	
Gasoline Blend Components Based on 100MB/D Refinery:	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %
<i>Production</i>								
LSR & Other C ₅ 's.....	7.3	13.4	3.8	7.8	3.8	7.2	3.8	7.4
Isomate.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Reformate.....	18.3	33.5	16.4	34.4	18.0	34.5	16.1	31.8
FCC Gasoline.....	15.7	28.8	15.7	32.8	15.7	30.1	15.3	30.3
Alkylate.....	7.1	13.1	7.1	14.9	9.5	18.2	9.5	18.8
n-Butane.....	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Refinery Production.....	48.4		43.0		47.0		44.6	
<i>Purchases</i>								
MTBE.....	6.1	11.2	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol.....	0.0	0.0	4.8	10.0	5.2	10.0	2.9	5.8
C ₃ Alkylate.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C ₄ Alkylate.....	0.0	0.0	0.0	0.0	0.0	0.0	2.9	5.7
Total Purchases.....	6.1		4.8		5.2		5.8	
Total Gasoline Production.....	54.5	100.0	47.8	100.0	52.2	100.0	50.4	100.0
Properties								
Octane: (R+M)/2.....	87.2		87.8		88.1		87.4	
RVP: psi.....	6.7		6.5		6.4		6.5	
Benzene: vol%.....	0.56		0.63		0.58		0.60	
Aromatics: vol%.....	25.5		26.7		26.3		24.9	
Olefins: vol%.....	9.0		10.2		9.4		9.3	
Sulfur: ppm.....	115.1		131.2		120.2		124.0	
E200: vol%.....	47.4		43.9		42.9		40.5	
E300: vol%.....	79.2		79.2		78.5		80.3	
Summary RFG Requirements	Changes from Industry Baseline^a	Federal Target^b	Changes from Industry Baseline^a	Federal Target^b	Changes from Industry Baseline^a	Federal Target^b	Changes from Industry Baseline^a	Federal Target^b
VOC: % Reduction.....	-25.9	≥25.9	-25.9	≥25.9	-25.9	≥25.9	-25.9	≥25.9
Toxics: % Reduction.....	-32.0	≥20.0	-26.3	≥20.0	-27.2	≥20.0	-28.2	≥20.0
NO _x : % Reduction.....	-8.8	≥5.5	-7.9	≥5.5	-8.8	≥5.5	-9.1	≥5.5
Benzene: vol %.....	0.56	≤1.0	0.63	≤1.0	0.58	≤1.0	0.60	≤1.0

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- ^a Emission reductions and benzene content of illustrative fuel for comparison with Federal requirements.
^b Federal reformulated gasoline required emission reductions and benzene content from industry baseline.

Definition of abbreviations and technical terms:

LSR = light straight run;
FCC = fluid catalytic cracking;
ppm = parts per million;
psi = pounds per square inch;
vol% = volume percent;
VOC = volatile organic compounds;
POM = polycyclic organic materials;
MB/D = thousand barrels per day
mg/mi = milligrams per mile;
MTBE = methyl tertiary butyl ether;
ETBE = ethyl tertiary butyl ether;
TAME = tertiary amyl methyl ether;
RVP = Reid vapor pressure.

Source: Energy Information Administration

Table 6. Meeting MSAT: MTBE-Ban Case Analysis for RFG Production – Federal RFG Producing Refinery

	Case 5		Case 6		Case 7		Case 8	
	Case 3 + Isomerization		Case 5 + DeSulfurization		Case 7 + Alkylate to Restore Volumes		Full Volumes – No Ethanol	
	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %	Volume (MB/D)	Vol %
Gasoline Blend Components Based on 100MB/D Refinery: MB/D								
<i>Production</i>								
LSR & Other C ₅ 's.....	0.0	0.0	0.0	0.0	0.5	0.9	3.6	6.5
Isomerate.....	3.6	7.0	3.6	6.9	3.6	6.6	3.6	6.6
Reformate.....	17.7	34.3	18.4	35.0	18.5	33.9	18.1	33.2
FCC Gasoline.....	15.5	30.1	15.7	29.9	15.7	28.8	15.7	28.8
Alkylate.....	9.5	18.5	9.5	18.1	9.5	17.5	9.5	17.4
n-Butane.....	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
Refinery Production.....	46.3		47.2		47.8		50.5	
<i>Purchases</i>								
MTBE.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol.....	5.1	10.0	5.2	10.0	5.4	10.0	0.0	0.0
C ₃ Alkylate.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C ₄ Alkylate.....	0.0	0.0	0.0	0.0	1.2	2.3	4.1	7.4
Total Purchases.....	5.1		5.2		6.7		4.1	
Total Gasoline Production.....	51.4	100.0	52.4	100.0	54.5	100.0	54.5	100.0
Properties								
Octane: (R+M)/2.....	90.1		90.0		90.0		86.9	
RVP: psi.....	6.4		6.5		6.6		6.4	
Benzene: vol%.....	0.30		0.29		0.28		0.28	
Aromatics: vol%.....	26.0		26.2		25.3		24.9	
Olefins: vol%.....	9.3		8.2		7.9		7.9	
Sulfur:ppm.....	122		11.9		11.5		11.4	
E200: vol%.....	42		42.0		42.3		39.3	
E300: vol%.....	79		78.1		78.6		78.8	
Summary RFG Requirements								
	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b	Changes from Industry Baseline ^a	Federal Target ^b
VOC: % Reduction.....	-25.9	≥25.9	-26.3	≥25.9	-25.9	≥25.9	-25.9	≥25.9
Toxics: % Reduction.....	-30.0	≥20.0	-32.0	≥20.0	-32.6	≥20.0	-32.3	≥20.0
NO _x : % Reduction.....	-8.9	≥5.5	-14.1	≥5.5	-14.4	≥5.5	-14.4	≥5.5
Benzene: vol %.....	0.30	≤1.0	0.29	≤1.0	0.28	≤1.0	0.28	≤1.0

^a Emission reductions and benzene content of illustrative fuel for comparison with Federal requirements.

^b Federal reformulated gasoline required emission reductions and benzene content from industry baseline.

Definition of abbreviations and technical terms:

LSR = light straight run;
FCC = fluid catalytic cracking;
ppm = parts per million;
psi = pounds per square inch;
vol% = volume percent;
VOC = volatile organic compounds;
POM = polycyclic organic materials;
MB/D = thousand barrels per day
mg/mi = milligrams per mile;
MTBE = methyl tertiary butyl ether;
ETBE = ethyl tertiary butyl ether;
TAME = tertiary amyl methyl ether;
RVP = Reid vapor pressure.

Source: Energy Information Administration

**Table 7. Demand Projections
(Thousand Barrels Per Day)**

	Gasoline Demand			Change 2000- 2007
	2000	2001	2007	
PADD 1	2,988	3,045	3,407	419
PADD 2	2,437	2,451	2,703	266
PADD 3	1,292	1,345	1,480	188
PADD 4	275	271	309	34
PADD 5	1,479	1,498	1,666	187
Total	8,471	8,610	9,564	1,093
Source: Energy Information Administration				

Table 8. Scenario Capacity Comparison (Million Barrels Per Calendar Day)					
	History	High Capacity		Low Capacity	
	2000	2007	Change	2007	Change
PADD 1	1.7	1.9	0.2	1.6	-0.1
PADDs 2-4	11.7	13.2	1.5	13.0	1.3
PADD 5	3.1	3.5	0.4	3.1	0.0
Total	16.6	18.6	2.0	17.7	1.1

Source: High Capacity: Energy Information Administration, "Availability of Gasoline Imports in the Short- to Mid-Term: U.S. Perspective," presented at the 2001 Annual Meeting of the National Petroleum Council, http://www.eia.doe.gov/pub/oil_gas/petroleum/presentations/2002/npra/index.html; Low Capacity: EIA No State Ban Run ENsXmXoX.d082302a

Table 9. U.S. Refinery Capacity Closures and Growth

Time Period	Annual Average Shutdown of Capacity (MB/CD)	Annual Growth of Continuously Operating Capacity (Percent)
1990-1994	139	0.5
1995-1999	96	2.0
2000-2007	60	2.0

MB/CD – Thousand barrels per calendar day

Source: Energy Information Administration, "Availability of Gasoline Imports in the Short- to Mid-Term: U.S. Perspective," presented at the 2001 Annual Meeting of the National Petroleum Council, http://www.eia.doe.gov/pub/oil_gas/petroleum/presentations/2002/npra/index.html

Table 10. U.S. Demand and High Capacity Scenario Refinery Capacity Changes, 2000-2007 (Thousand Barrels per Day)

	Gasoline Demand			Refining Capacity		
	2000	2007	Change	2000	2007	Change
PADD 1	2,988	3,407	419	1,704	1,869	164
PADD 2	2,437	2,703	266	3,620	3,981	361
PADD 3	1,292	1,480	188	7,553	8,613	1,060
PADD 4	275	309	34	541	577	36
PADD 5	1,479	1,666	187	3,095	3,493	398
Total	8,471	9,564	1,093	16,512	18,532	2,020

Source: Energy Information Administration

Table 11. High Capacity Scenario No MTBE Ban Supply-Demand Balance

	Refining Capacity	Crude & Unfinished Oils Inputs	Utilization	Gasoline Demand	Gasoline Production	Net Imports
	MB/D	MB/D	Percent	MB/D	MB/D	MB/D
2000	16,512	15,526	94	8,471	8,185	282
2007	18,532	17,431	94	9,564	9,168	396
Increase	2,020	1,905	0	1,093	983	114

MB/D = thousand barrels per day

Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration

**Table 12. High Capacity Scenario Changes⁽¹⁾ from the No-Ban Case
When MTBE is Removed (Thousand Barrels Per Day)**

	PADD 1	PADD 2	PADD 3	PADD 5	Total U.S.
Loss of MTBE Volumes	-100	0	-93	-113	-306
Addition of Ethanol to RFG ⁽²⁾	75	0	18	58	151
Reduction in Light Ends for RVP	-25	0	-38	-50	-113
Reduction of Heavy Ends for Distillation Points	-14	0	-9	-17	-40
Refinery Increased Alkylate Production	9	10	71	17	107
Commercial Alkylate or Iso-Octane Production	0	0	25	10	35
Added Ethanol in Conventional	0	-20	0	0	-20
Total	-55	-10	-26	-95	-186

(1) These estimates do not take into consideration additional volume losses due to MSAT constraints on refiners switching from MTBE to ethanol.

(2) The energy content of the gasoline produced for PADDs 1,3, and 5 are approximately the same before and after the MTBE ban because even though ethanol has a lower energy content than MTBE (76 vs. 92 thousand Btu's), 5.8 percent ethanol is being used in the estimate in place of 11.2 percent MTBE. Thus no volume adjustment for energy content differences is needed in this table.

$115 = 0.112 \times 93.5 + .888 \times 117.7$ and

$115 = 0.058 \times 76 + 0.942 \times 117.7$.

Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration

**Table 13. High Capacity Scenario No-Ban Case
Increases in Gasoline Supply & /Demand Between 2000 & 2007**

	Refinery Capacity	Crude & Unfinished Oils Inputs	Gasoline Demand	Gasoline Production	Net Receipts	Net Finished Imports	Blending Component Imports
	MB/D	MB/D	MB/D	MB/D	MB/D	MB/D	MB/D
PADD 1	164	130	419	90	242	77	1
PADD 2	361	363	266	239	34	0	0
PADD 3	1060	1043	188	511	-344	25	0
PADD 4	36	19	34	2	33	0	0
PADD 5	398	350	187	141	33	12	0
Total U.S.	2020	1,905	1,093	983	0	114	1

MB/D = thousand barrels per day

Unfinished Oils do not include gasoline blendstocks such as alkylate.

Net Receipts are flows of product from other regions.

Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration

**Table 14. High Capacity Scenario MTBE-Ban Case
Increases in Gasoline Supply & Demand Between 2000 & 2007**

	Refinery Capacity	Crude & Unfinished Oils Inputs	Gasoline Demand	Gasoline Production		Net Receipts	Net Finished Imports	Blending Component Imports
				Refinery	Blender			
	MB/D	MB/D	MB/D	MB/D	MB/D	MB/D	MB/D	MB/D
PADD 1	164	158	419	40	333	220	-183	299
PADD 2	361	423	266	238	0	35	0	0
PADD 3	1,060	1,172	188	545	0	-378	25	0
PADD 4	36	28	34	14	0	21		0
PADD 5	398	403	187	74	0	100	12	0
Total	2,020	2,183	1,093	910	333	0	-146	299

MB/D – Thousand barrels per day

Unfinished Oils do not include gasoline blendstocks such as alkylate.

Gasoline Production includes production from blenders. They are only broken out for PADD 1, where large changes would be expected. The large increase in PADD 1 is due to a shift from finished RFG imports to RBOB imports, which blenders then use to produce finished RFG.

Net Receipts are flows of product from other regions.

PADD 2 gasoline production declined slightly in the MTBE-Ban Case from the No-Ban case due to diversion of conventional gasoline ethanol in PADD 2 to RFG in PADDs 1 and 5.

Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration

Table 15. U.S. Demand and Low Capacity Scenario Refinery Capacity Changes, 2000-2007 (Thousand Barrels Per Day)

	Gasoline Demand			Refining Capacity		
	2000	2007	Change	2000	2007	Change
PADD 1	2,988	3,407	419	1,704	1,570	-134
PADD 2	2,437	2,703	266	3,620	4,040	420
PADD 3	1,292	1,480	188	7,553	8,458	905
PADD 4	275	309	34	541	547	6
PADD 5	1,479	1,666	187	3,095	3,116	21
Total	8,471	9,564	1,093	16,512	17,731	1,219

Totals may not equal the sum of the components due to independent rounding.
Source: Energy Information Administration

**Table 16. Low Capacity Scenario Changes⁽¹⁾ from the No-Ban Case
When MTBE is Removed
(Thousand Barrels Per Day)**

	PADD 1	PADD 2	PADD 3	PADD 5	Total U.S.
Loss of MTBE Volumes	-113	0	-93	-101	-306
Addition of Ethanol to RFG ⁽²⁾	75	0	18	58	151
Reduction in Light Ends for RVP	-21	0	-37	-50	-108
Reduction of Heavy Ends for Distillation Points	-12	0	-9	-16	-37
Refinery Increased Alkylate Production	9	10	71	17	107
Commercial Alkylate or Iso-Octane Production	0	0	25	10	35
Added Ethanol in Conventional	0	-20	0	0	-20
Total	-62	-10	-25	-82	-179

(1) These estimates do not take into consideration additional volume losses due to MSAT constraints on refiners switching from MTBE to ethanol.

(2) No volume adjustment for energy content differences is needed in this table since ethanol has a lower Btu content (76,000 Btu's) than MTBE (93,500 Btu's), and 5.8 percent ethanol is being assumed to substitute for 11.2 percent MTBE as illustrated for a gallon of 115 thousand Btu finished gasoline:

$$115 = 0.112 \times 93.5 + .888 \times 117.7 \text{ and}$$

$$115 = 0.58 \times 76 + 0.942 \times 117.7$$

Totals may not equal the sum of the components due to independent rounding

Source: Energy Information Administration

**Table 17. PADD 1 Comparison Of Scenario Impacts of MTBE Ban
(Thousand Barrels Per Day)**

		Gasoline Demand	Refinery Capacity	Gasoline Production		Net Receipts	Net Finished Imports	Blending Component Imports
				Refinery	Blenders			
History	2000	2,988	1,704	836	186	1,578	397	199
High Capacity								
No Ban	2007	3,407	1,869	925	187	1,820	474	200
MTBE Ban	2007	3,407	1,869	875	519	1,798	214	498
Low Capacity								
No Ban	2007	3,407	1,570	776	348	1,588	695	350
MTBE Ban	2007	3,407	1,570	737	661	1,589	420	635

MB/D = thousand barrels per day

During 2000, stock draws contributed about 10 thousand barrels per day to demand.

Blender component contribution to production and imports was separated due to the historically large imports of blending components, much of which has been RFG quality fuel.

Net Receipts are flows of product from other regions

Totals may not equal the sum of the components due to independent rounding

Source: Energy Information Administration

Table 18. Estimated PADD 1 Imports of RFG-Quality Volumes

		RFG	Blending Components for RFG	RBOB for Ethanol	Total RFG- Quality Imports
		MB/D	MB/D	MB/D	
History	2000	194	176		370
High Capacity					
No Ban	2007	234	176		410
MTBE Ban	2007	0	0	466	466
Low Capacity					
No Ban	2007	262	300		562
MTBE Ban	2007			610	610

Source: Energy Information Administration

**Table 19. PADD 5 Comparison Of Scenario Impacts of MTBE Ban
(Thousand Barrels per Day)**

	Year	Gasoline Demand	Refinery Capacity	Refinery Gasoline Production	Net Receipts	Net Finished Imports
History	2000	1,479	3,095	1,387	84	8
High Capacity						
No Ban	2007	1,666	3,493	1,528	117	20
MTBE Ban	2007	1,666	3,493	1,461	184	20
Low Capacity						
No Ban	2007	1,666	3,116	1,363	283	20
MTBE Ban	2007	1,666	3,116	1,307	339	20

MB/D = thousand barrels per day

All production is assumed to be blended by refiners.

Net Receipts are flows of product from other regions

Totals may not equal the sum of the components due to independent rounding

Source: Energy Information Administration