AFPM UNITED STATES REFINING AND STORAGE CAPACITY REPORT

JANUARY 1, 2016

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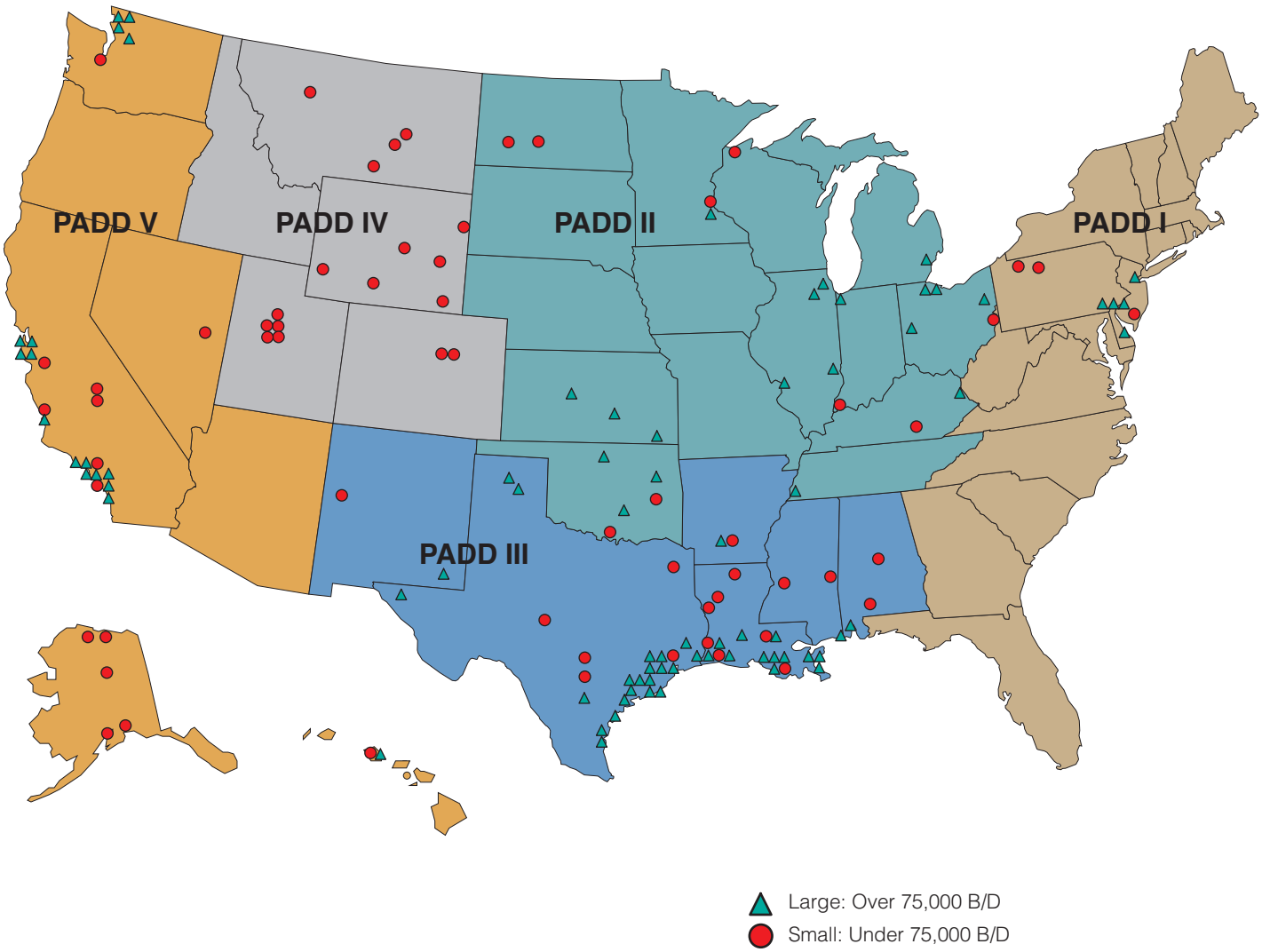
Locations of U.S. Refineries 2016



AFPM United States Refining and Storage Capacity Report

The enclosed statistics provide U.S. refining and storage capacity data as reported by the DOE Energy Information Administration in their 2016 Petroleum Supply Annual. These data, along with other DOE statistics, are also available electronically. (See the note at the bottom for details). This report is also available on the AFPM website (www.afpm.org) under Publications/Statistical Reports.

On January 1, 2016, there were 141[a] operable refineries in the United States with total crude distillation capacity of about 18.32 million barrels per calendar day (bpcd) and 19.51 million barrels per stream day (bpsd). Of these, 139 refineries were operating on January 1, 2016, with operating capacity listed at 18.17 million barrels per calendar day (bpcd) and 19.35 million bpsd.

Overall, U.S. refining capacity increased 350,000 bpcd in 2016. The number of idle refineries on January 1 decreased from three in 2015 to two in 2016.

The following table lists the total U.S. refining capacity for the past five years:

January 1 Total Capacity in Thousands of Barrels Per Calendar Day

	2012	2013	2014	2015	2016
U.S. Capacity	17,322	17,823	17,925	17,967	18,317
Puerto Rico	–	–	–	–	–
Virgin Islands	500	0	0	0	0

Percentage Change in U.S. Capacity from Previous Year

2012	2013	2014	2015	2016
-2.33%	2.89%	0.57%	0.23%	1.95%

This summary of petroleum refineries in the United States and U.S. territories is taken from the Department of Energy's Petroleum Supply Annual 2016, published June, 2016. Capacity data are reproduced by AFPM as a courtesy to members. The data enclosed, as well as other DOE refining statistics, are available electronically from DOE (http://www.eia.doe.gov). For more information, call EIA's National Information Center at 202.586.8800. email at: infoctr@eia.doe.gov.

[a] The total count of operational refineries (141) includes a chemical plant that produces gasoline blending components (Equistar Chemicals LP, Channelview, TX); a condensate splitter (Kinder Morgan, Galena Park, TX); two pairs of refineries that are operated as a single entity (Suncor, Commerce City, CO; HollyFrontier, Tulsa, OK); and three other facilities which do not operate distillation capacity (Alon, Bakersfield, CA; Excel Paralubes, Westlake, LA; South Hampton Resources, Silsbee, TX).

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AFPM United States Refining and Storage Capacity Report

Table 1. Number and Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2016

PAD District and State	Number of Operable Refineries			Atmospheric Crude Oil Distillation Capacity					
				Barrels per Calendar Day			Barrels per Stream Day		
	Total	Operating	Idle [a]	Total	Operating	Idle [b]	Total	Operating	Idle [b]
PAD District I	**9**	**9**	**0**	**1,277,500**	**1,245,500**	**32,000**	**1,353,000**	**1,318,000**	**35,000**
Delaware	1	1	0	182,200	182,200	0	190,200	190,200	0
New Jersey	3	3	0	472,000	440,000	32,000	495,000	460,000	35,000
Pennsylvania	4	4	0	601,000	601,000	0	644,800	644,800	0
West Virginia	1	1	0	22,300	22,300	0	23,000	23,000	0
PAD District II	**27**	**27**	**0**	**3,922,200**	**3,900,200**	**22,000**	**4,220,947**	**4,197,947**	**23,000**
Illinois	4	4	0	962,540	940,540	22,000	1,023,200	1,000,200	23,000
Indiana	2	2	0	440,600	440,600	0	458,800	458,800	0
Kansas	3	3	0	339,000	339,000	0	355,000	355,000	0
Kentucky	2	2	0	278,500	278,500	0	298,300	298,300	0
Michigan	1	1	0	132,000	132,000	0	144,000	144,000	0
Minnesota	2	2	0	378,900	378,900	0	436,800	436,800	0
North Dakota	2	2	0	93,360	93,360	0	94,600	94,600	0
Ohio	4	4	0	558,000	558,000	0	618,000	618,000	0
Oklahoma	5	5	0	511,300	511,300	0	547,247	547,247	0
Tennessee	1	1	0	190,000	190,000	0	195,000	195,000	0
Wisconsin	1	1	0	38,000	38,000	0	50,000	50,000	0
PAD District III	**57**	**57**	**0**	**9,514,745**	**9,514,745**	**0**	**10,117,755**	**10,117,755**	**0**
Alabama	3	3	0	131,675	131,675	0	140,500	140,500	0
Arkansas	2	2	0	90,500	90,500	0	92,700	92,700	0
Louisiana	18	18	0	3,348,820	3,348,820	0	3,504,355	3,504,355	0
Mississippi	3	3	0	364,000	364,000	0	397,500	397,500	0
New Mexico	2	2	0	127,500	127,500	0	141,000	141,000	0
Texas	29	29	0	5,452,250	5,452,250	0	5,841,700	5,841,700	0
PAD District IV	**17**	**16**	**1**	**678,550**	**665,150**	**13,400**	**719,900**	**705,400**	**14,500**
Colorado	2	2	0	103,000	103,000	0	110,500	110,500	0
Montana	4	4	0	213,200	203,600	9,600	222,400	212,400	10,000
Utah	5	5	0	181,050	181,050	0	193,100	193,100	0
Wyoming	6	5	1	181,300	177,500	3,800	193,900	189,400	4,500
PAD District V	**31**	**30**	**1**	**2,924,041**	**2,839,541**	**84,500**	**3,096,000**	**3,006,000**	**90,000**
Alaska	5	5	0	158,700	158,700	0	183,500	183,500	0
California	18	17	1	1,982,141	1,897,641	84,500	2,096,000	2,006,000	90,000
Hawaii	2	2	0	147,500	147,500	0	152,000	152,000	0
Nevada	1	1	0	2,000	2,000	0	5,000	5,000	0
Washington	5	5	0	633,700	633,700	0	659,500	659,500	0
U.S. Total	**141**	**139**	**2**	**18,317,036**	**18,165,136**	**151,900**	**19,507,602**	**19,345,102**	**162,500**

Table 1. Number and Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2016

PAD District and State	Downstream Charge Capacity (Barrels per Stream Day)							
	Vacuum Distillation	Thermal Cracking	Catalytic Cracking		Catalytic Hydro-Cracking	Catalytic Reforming	Hydrotreating/ Desulfurization	Fuels Solvent Deasphalting
			Fresh	Recycled				
PAD District I	**586,400**	**81,500**	**498,500**	**5,000**	**45,300**	**263,950**	**1,029,500**	**22,000**
Delaware	104,600	54,500	82,000	4,000	22,300	43,800	150,500	0
New Jersey	197,000	27,000	200,000	0	0	64,000	335,100	22,000
Pennsylvania	276,200	0	216,500	1,000	23,000	152,200	524,300	0
West Virginia	8,600	0	0	0	0	3,950	19,600	0
PAD District II	**1,774,854**	**577,185**	**1,339,113**	**15,800**	**322,200**	**892,693**	**3,866,599**	**17,850**
Illinois	471,900	212,800	324,300	0	92,000	247,700	936,650	0
Indiana	277,900	102,000	183,200	7,200	0	71,500	469,000	0
Kansas	148,000	69,000	104,000	500	38,500	81,000	369,700	0
Kentucky	122,000	0	104,000	0	0	53,800	271,150	13,000
Michigan	77,500	30,000	40,000	0	0	21,500	130,000	0
Minnesota	278,000	67,000	115,500	2,500	50,000	75,300	425,100	0
North Dakota	0	0	27,000	3,600	0	12,500	51,100	0
Ohio	159,500	58,000	208,300	0	83,000	170,300	515,400	0
Oklahoma	219,554	38,385	151,813	2,000	32,200	115,093	536,799	4,850
Tennessee	0	0	70,000	0	26,500	36,000	129,000	0
Wisconsin	20,500	0	11,000	0	0	8,000	32,700	0
PAD District III	**4,830,325**	**1,636,180**	**3,117,850**	**33,500**	**1,309,400**	**1,864,470**	**9,319,445**	**244,400**
Alabama	47,000	32,000	0	0	18,500	37,300	109,000	0
Arkansas	48,850	0	21,000	0	0	15,300	98,250	7,400
Louisiana	1,761,000	564,100	1,130,900	5,500	477,100	607,490	2,977,940	71,000
Mississippi	338,875	105,000	88,000	0	117,500	95,600	299,300	0
New Mexico	29,600	0	35,500	3,000	0	31,300	152,100	0
Texas	2,605,000	935,080	1,842,450	25,000	696,300	1,077,480	5,682,855	166,000
PAD District IV	**255,500**	**89,800**	**210,020**	**4,990**	**54,800**	**133,850**	**592,060**	**6,000**
Colorado	33,500	0	30,000	500	0	21,900	85,000	0
Montana	115,000	47,100	64,660	990	30,200	39,550	217,260	0
Utah	34,500	9,000	61,860	3,000	9,000	36,800	141,400	6,000
Wyoming	72,500	33,700	53,500	500	15,600	35,600	148,400	0
PAD District V	**1,626,206**	**598,600**	**886,700**	**16,400**	**585,900**	**588,100**	**2,675,200**	**80,300**
Alaska	26,000	0	0	0	12,500	14,200	24,500	0
California	1,231,756	504,800	716,300	13,400	488,400	422,500	2,166,300	56,000
Hawaii	71,000	11,000	22,000	0	20,000	13,500	16,500	0
Nevada	2,750	0	0	0	0	0	0	0
Washington	294,700	82,800	148,400	3,000	65,000	137,900	467,900	24,300
U.S. Total	**9,073,285**	**2,983,265**	**6,052,183**	**75,690**	**2,317,600**	**3,743,063**	**17,482,804**	**370,550**

[a] Refineries where distillation units were completely idle but not permanently shutdown on January 1, 2016.
[b] Includes capacity from refineries that are either completely or partially idle.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 2. Production Capacity of Operable Petroleum Refineries by PAD District and State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

PAD District and State	Production Capacity							
	Alkylates	Aromatics	Asphalt and Road Oil	Isomers	Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd) [a]	Sulfur (short tons/day)
PAD District I	**83,429**	**10,111**	**92,765**	**26,500**	**21,045**	**21,120**	**69**	**1,159**
Delaware	11,729	5,191	0	6,000	0	13,620	40	596
New Jersey	29,200	0	70,000	4,000	12,000	7,500	26	280
Pennsylvania	42,500	4,920	22,065	16,500	2,945	0	0	282
West Virginia	0	0	700	0	6,100	0	3	1
PAD District II	**280,821**	**113,200**	**267,314**	**167,900**	**10,000**	**172,705**	**582**	**8,352**
Illinois	84,900	17,200	38,100	16,000	0	65,995	202	2,380
Indiana	33,200	16,800	33,700	28,000	0	30,000	0	1,913
Kansas	33,500	0	4,000	32,300	0	20,060	90	712
Kentucky	21,000	3,200	35,400	18,000	0	0	0	448
Michigan	7,000	0	23,000	0	0	10,500	0	459
Minnesota	18,000	0	58,000	28,500	0	22,900	186	1,264
North Dakota	4,830	0	0	0	0	0	2	19
Ohio	28,950	20,000	23,800	31,200	0	14,200	0	683
Oklahoma	35,141	21,000	43,414	13,900	10,000	9,050	72	324
Tennessee	12,700	29,000	0	0	0	0	30	116
Wisconsin	1,600	6,000	7,900	0	0	0	0	34
PAD District III	**632,850**	**198,464**	**201,225**	**324,710**	**202,295**	**501,241**	**910**	**24,820**
Alabama	0	0	15,000	5,350	0	7,120	40	228
Arkansas	5,000	0	21,500	7,500	5,500	0	13	157
Louisiana	220,000	49,900	57,000	100,220	66,000	166,057	118	6,773
Mississippi	18,600	21,000	36,125	0	48,000	35,500	243	1,355
New Mexico	10,900	0	7,000	0	0	0	38	202
Texas	378,350	127,564	64,600	211,640	82,795	292,564	458	16,105
PAD District IV	**46,250**	**0**	**82,350**	**16,935**	**0**	**27,775**	**177**	**1,033**
Colorado	0	0	12,250	985	0	0	22	116
Montana	17,350	0	44,300	6,750	0	13,575	97	489
Utah	18,900	0	1,800	9,200	0	2,500	0	95
Wyoming	10,000	0	24,000	0	0	11,700	58	333
PAD District V	**242,662**	**1,500**	**88,933**	**219,200**	**39,800**	**166,650**	**1,259**	**5,979**
Alaska	0	0	10,000	5,000	0	0	13	27
California	201,562	1,500	48,833	170,200	39,800	143,000	1,088	5,092
Hawaii	5,000	0	15,000	3,200	0	0	21	38
Nevada	0	0	1,600	0	0	0	0	0
Washington	36,100	0	13,500	40,800	0	23,650	137	822
U.S. Total	**1,286,012**	**323,275**	**732,587**	**755,245**	**273,140**	**889,491**	**2,997**	**41,343**

[a] Includes hydrogen production capacity of hydrogen plants on refinery grounds.

MMcfd = Million cubic feet per day.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Directory of Operable Petroleum Refineries on Tables 3 and 4

Refiner	State(s)	Refiner	State(s)
Alon Bakersfield Operating Inc	CA	Hunt Southland Refining Co	MS
Alon Refining Krotz Springs Inc	LA	Kern Oil & Refining Co	CA
Alon USA Energy Inc	TX	Kinder Morgan Crude & Condensate	TX
American Refining Group Inc	PA	Lazarus Energy LLC	TX
Antelope Refining LLC	WY	Lima Refining Company	OH
Axeon Specialty Products LLC	NJ	Lion Oil Co	AR
BP Exploration Alaska Inc	AK	Little America Refining Co	WY
BP Products North America Inc	IN	Lunday Thagard Co	CA
BP West Coast Products LLC	WA	Marathon Petroleum Co LP	IL, KY, LA, MI, OH, TX
BP-Husky Refining LLC	OH	Monroe Energy LLC	PA
Big West Oil Co	UT	Motiva Enterprises LLC	LA, TX
Buckeye Texas Processing LLC	TX	PDV Midwest Refining LLC	IL
CHS McPherson Refinery Inc	KS	Paramount Petroleum Corporation	CA
Calcasieu Refining Co	LA	Pasadena Refining Systems Inc	TX
Calumet Lubricants Co	TX	Paulsboro Refining Co LLC	NJ
Calumet Lubricants Co LP	LA, WI	Petro Star Inc	AK
Calumet Montana Refining LLC	MT	Petromax Refining Co LLC	TX
Calumet Shreveport LLC	LA	Philadelphia Energy Solutions	PA
Cenex Harvest States Coop	MT	Phillips 66 Company	CA, LA, MT, NJ, OK, TX, WA
Chalmette Refining LLC	LA	Placid Refining Co	LA
Chevron USA Inc	CA, HI, MS, UT	Premcor Refining Group Inc	TN, TX
Citgo Petroleum Corp	LA	San Joaquin Refining Co Inc	CA
Citgo Refining & Chemical Inc	TX	Santa Maria Refining Company	CA
Coffeyville Resources Rfg & Mktg	KS	Shell Chemical LP	AL
ConocoPhillips Alaska Inc	AK	Shell Oil Products US	CA, LA, WA
Continental Refining Company LLC	KY	Silver Eagle Refining	UT, WY
Countrymark Cooperative Inc	IN	Sinclair Wyoming Refining Co	WY
Cross Oil Refining & Marketing Inc	AR	South Hampton Resources Inc	TX
Dakota Prairie Refining LLC	ND	St Paul Park Refining Co LLC	MN
Deer Park Refining LTD Partnership	TX	Suncor Energy (USA) Inc	CO
Delaware City Refining Co LLC	DE	Tesoro Alaska Petroleum Co	AK
Delek Refining LTD	TX	Tesoro Refining & Marketing Co	CA
Equistar Chemicals LP	TX	Tesoro West Coast	ND, UT, WA
Ergon Refining Inc	MS	Toledo Refining Co LLC	OH
Ergon West Virginia Inc	WV	Total Petrochemicals & Refining USA	TX
Excel Paralubes	LA	US Oil & Refining Co	WA
ExxonMobil Refining & Supply Co	CA, IL, LA, MT, TX	United Refining Co	PA
Flint Hills Resources LP	MN, TX	Valero Energy Corporation	LA, TX
Foreland Refining Corp	NV	Valero Refining Co California	CA
Goodway Refining LLC	AL	Valero Refining Co Oklahoma	OK
Hawaii Independent Energy LLC	HI	Valero Refining Co Texas LP	TX
HollyFrontier Cheyenne Refining LLC	WY	Valero Refining New Orleans LLC	LA
HollyFrontier El Dorado Refining LLC	KS	WRB Refining LP	IL, TX
HollyFrontier Navajo Refining LLC	NM	Western Refining Company LP	TX
HollyFrontier Tulsa Refining LLC	OK	Western Refining Southwest Inc	NM
HollyFrontier Woods Cross Refining LLC	UT	Wynnewood Refining Co	OK
Houston Refining LP	TX	Wyoming Refining Co	WY
Hunt Refining Co	AL		

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Alabama	**131,675**	**0**	**140,500**	**0**	**47,000**	**32,000**	**0**	**0**	**0**
Goodway Refining LLC									
Atmore	4,100	0	5,000	0	0	0	0	0	0
Hunt Refining Co									
Tuscaloosa	36,000	0	40,000	0	18,000	32,000	0	0	0
Shell Chemical LP									
Saraland	91,575	0	95,500	0	29,000	0	0	0	0
Alaska	**158,700**	**0**	**183,500**	**0**	**26,000**	**0**	**0**	**0**	**0**
BP Exploration Alaska Inc									
Prudhoe Bay	10,500	0	13,000	0	0	0	0	0	0
ConocoPhillips Alaska Inc									
Prudhoe Bay	15,000	0	16,000	0	0	0	0	0	0
Petro Star Inc									
North Pole	19,700	0	22,500	0	0	0	0	0	0
Valdez	55,000	0	60,000	0	0	0	0	0	0
Tesoro Alaska Petroleum Co									
Kenai	58,500	0	72,000	0	26,000	0	0	0	0
Arkansas	**90,500**	**0**	**92,700**	**0**	**48,850**	**0**	**0**	**0**	**0**
Cross Oil Refining & Marketing Inc									
Smackover	7,500	0	7,700	0	3,850	0	0	0	0
Lion Oil Co									
El Dorado	83,000	0	85,000	0	45,000	0	0	0	0
California	**1,897,641**	**84,500**	**2,006,000**	**90,000**	**1,231,756**	**447,800**	**52,000**	**5,000**	**0**
Alon Bakersfield Operating Inc									
Bakersfield	0	0	0	0	0	0	0	0	0
Chevron USA Inc									
El Segundo	269,000	0	290,500	0	169,100	74,700	0	0	0
Richmond	245,271	0	257,200	0	123,456	0	0	0	0
ExxonMobil Refining & Supply Co									
Torrance	151,300	0	157,800	0	102,300	53,000	0	0	0
Kern Oil & Refining Co									
Bakersfield	26,000	0	27,000	0	0	0	0	0	0
Lunday Thagard Co									
South Gate	8,500	0	10,000	0	7,000	0	0	0	0
Paramount Petroleum Corporation									
Paramount	0	84,500	0	90,000	30,000	0	0	0	0
Phillips 66 Company									
Rodeo	120,200	0	128,000	0	93,200	51,000	0	0	0
Wilmington	139,000	0	147,000	0	82,000	53,200	0	0	0
San Joaquin Refining Co Inc									
Bakersfield	15,000	0	25,000	0	14,300	0	0	5,000	0
Santa Maria Refining Company									
Santa Maria	9,500	0	10,000	0	10,000	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Alabama	**0**	**0**	**0**	**18,500**	**0**	**15,300**	**22,000**	**0**
Goodway Refining LLC								
Atmore	0	0	0	0	0	0	0	0
Hunt Refining Co								
Tuscaloosa	0	0	0	18,500	0	15,300	0	0
Shell Chemical LP								
Saraland	0	0	0	0	0	0	22,000	0
Alaska	**0**	**0**	**0**	**12,500**	**0**	**14,200**	**0**	**0**
BP Exploration Alaska Inc								
Prudhoe Bay	0	0	0	0	0	0	0	0
ConocoPhillips Alaska Inc								
Prudhoe Bay	0	0	0	0	0	0	0	0
Petro Star Inc								
North Pole	0	0	0	0	0	0	0	0
Valdez	0	0	0	0	0	0	0	0
Tesoro Alaska Petroleum Co								
Kenai	0	0	0	12,500	0	14,200	0	0
Arkansas	**21,000**	**0**	**0**	**0**	**0**	**15,300**	**0**	**7,400**
Cross Oil Refining & Marketing Inc								
Smackover	0	0	0	0	0	0	0	0
Lion Oil Co								
El Dorado	21,000	0	0	0	0	15,300	0	7,400
California	**716,300**	**13,400**	**191,800**	**296,600**	**0**	**205,800**	**216,700**	**56,000**
Alon Bakersfield Operating Inc								
Bakersfield	0	0	0	15,000	0	8,000	0	0
Chevron USA Inc								
El Segundo	73,800	0	0	53,200	0	49,000	0	0
Richmond	90,000	0	0	103,400	0	71,300	0	56,000
ExxonMobil Refining & Supply Co								
Torrance	87,800	12,400	23,000	0	0	0	18,000	0
Kern Oil & Refining Co								
Bakersfield	0	0	0	0	0	2,500	3,300	0
Lunday Thagard Co								
South Gate	0	0	0	0	0	0	0	0
Paramount Petroleum Corporation								
Paramount	0	0	0	0	0	0	12,000	0
Phillips 66 Company								
Rodeo	0	0	0	65,000	0	0	34,000	0
Wilmington	51,600	0	27,500	0	0	0	36,200	0
San Joaquin Refining Co Inc								
Bakersfield	0	0	0	0	0	0	0	0
Santa Maria Refining Company								
Santa Maria	0	0	0	0	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Alabama	**36,500**	**0**	**2,500**	**16,000**	**24,000**	**0**	**30,000**	**0**
Goodway Refining LLC								
Atmore	0	0	0	0	0	0	0	0
Hunt Refining Co								
Tuscaloosa	12,100	0	2,500	0	24,000	0	0	0
Shell Chemical LP								
Saraland	24,400	0	0	16,000	0	0	30,000	0
Alaska	**13,000**	**0**	**0**	**11,500**	**0**	**0**	**0**	**0**
BP Exploration Alaska Inc								
Prudhoe Bay	0	0	0	0	0	0	0	0
ConocoPhillips Alaska Inc								
Prudhoe Bay	0	0	0	0	0	0	0	0
Petro Star Inc								
North Pole	0	0	0	0	0	0	0	0
Valdez	0	0	0	0	0	0	0	0
Tesoro Alaska Petroleum Co								
Kenai	13,000	0	0	11,500	0	0	0	0
Arkansas	**20,000**	**8,750**	**0**	**35,000**	**0**	**0**	**21,000**	**13,500**
Cross Oil Refining & Marketing Inc								
Smackover	0	0	0	0	0	0	0	5,500
Lion Oil Co								
El Dorado	20,000	8,750	0	35,000	0	0	21,000	8,000
California	**443,100**	**270,500**	**198,100**	**339,300**	**122,100**	**0**	**723,000**	**70,200**
Alon Bakersfield Operating Inc								
Bakersfield	8,000	0	0	0	0	0	21,000	0
Chevron USA Inc								
El Segundo	59,000	0	36,300	45,500	14,000	0	73,700	0
Richmond	57,600	64,800	96,000	64,800	0	0	65,000	34,000
ExxonMobil Refining & Supply Co								
Torrance	24,700	0	0	18,000	0	0	106,500	0
Kern Oil & Refining Co								
Bakersfield	5,000	0	0	0	9,000	0	0	0
Lunday Thagard Co								
South Gate	0	0	0	0	0	0	0	0
Paramount Petroleum Corporation								
Paramount	15,000	0	8,500	13,000	0	0	0	0
Phillips 66 Company								
Rodeo	27,500	0	0	35,000	0	0	0	0
Wilmington	50,800	0	12,900	32,000	0	0	55,000	0
San Joaquin Refining Co Inc								
Bakersfield	0	0	0	0	3,600	0	1,800	0
Santa Maria Refining Company								
Santa Maria	0	0	0	0	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day		Vacuum Distillation	Thermal Cracking			
	Operating	Idle	Operating	Idle		Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
California	**1,897,641**	**84,500**	**2,006,000**	**90,000**	**1,231,756**	**447,800**	**52,000**	**5,000**	**0**
Shell Oil Products US									
Martinez	156,400	0	158,000	0	102,000	25,000	22,500	0	0
Tesoro Refining & Marketing Co									
Carson	256,830	0	276,000	0	140,000	67,100	0	0	0
Martinez	166,000	0	170,000	0	156,900	53,000	0	0	0
Wilmington	98,340	0	107,000	0	65,000	42,000	0	0	0
Valero Refining Co California									
Benicia	145,000	0	149,000	0	85,500	0	29,500	0	0
Wilmington Asphalt Plant	6,300	0	6,500	0	5,000	0	0	0	0
Wilmington Refinery	85,000	0	87,000	0	46,000	28,800	0	0	0
Colorado	**103,000**	**0**	**110,500**	**0**	**33,500**	**0**	**0**	**0**	**0**
Suncor Energy (USA) Inc									
Commerce City East	36,000	0	38,000	0	8,500	0	0	0	0
Commerce City West	67,000	0	72,500	0	25,000	0	0	0	0
Delaware	**182,200**	**0**	**190,200**	**0**	**104,600**	**0**	**54,500**	**0**	**0**
Delaware City Refining Co LLC									
Delaware City	182,200	0	190,200	0	104,600	0	54,500	0	0
Hawaii	**147,500**	**0**	**152,000**	**0**	**71,000**	**0**	**0**	**11,000**	**0**
Chevron USA Inc									
Honolulu	54,000	0	57,000	0	31,000	0	0	0	0
Hawaii Independent Energy LLC									
Ewa Beach	93,500	0	95,000	0	40,000	0	0	11,000	0
Illinois	**940,540**	**22,000**	**1,000,200**	**23,000**	**471,900**	**212,800**	**0**	**0**	**0**
ExxonMobil Refining & Supply Co									
Joliet	238,600	0	260,000	0	126,700	59,400	0	0	0
Marathon Petroleum Co LP									
Robinson	212,000	0	225,000	0	71,500	30,000	0	0	0
PDV Midwest Refining LLC									
Lemont	175,940	0	185,200	0	77,200	40,400	0	0	0
WRB Refining LP									
Wood River	314,000	22,000	330,000	23,000	196,500	83,000	0	0	0
Indiana	**440,600**	**0**	**458,800**	**0**	**277,900**	**102,000**	**0**	**0**	**0**
BP Products North America Inc									
Whiting	413,500	0	430,000	0	263,900	102,000	0	0	0
Countrymark Cooperative Inc									
Mount Vernon	27,100	0	28,800	0	14,000	0	0	0	0
Kansas	**339,000**	**0**	**355,000**	**0**	**148,000**	**69,000**	**0**	**0**	**0**
CHS McPherson Refinery Inc									
McPherson	86,000	0	89,000	0	38,000	25,000	0	0	0
Coffeyville Resources Rfg & Mktg									
Coffeyville	115,000	0	125,000	0	46,000	25,000	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
California	**716,300**	**13,400**	**191,800**	**296,600**	**0**	**205,800**	**216,700**	**56,000**
Shell Oil Products US								
Martinez	72,000	0	42,300	0	0	31,000	0	0
Tesoro Refining & Marketing Co								
Carson	102,500	0	55,000	0	0	0	43,000	0
Martinez	72,000	1,000	0	37,000	0	26,000	0	0
Wilmington	35,000	0	10,000	23,000	0	0	33,000	0
Valero Refining Co California								
Benicia	75,300	0	34,000	0	0	0	37,200	0
Wilmington Asphalt Plant	0	0	0	0	0	0	0	0
Wilmington Refinery	56,300	0	0	0	0	18,000	0	0
Colorado	**30,000**	**500**	**0**	**0**	**0**	**21,900**	**0**	**0**
Suncor Energy (USA) Inc								
Commerce City East	9,000	500	0	0	0	11,000	0	0
Commerce City West	21,000	0	0	0	0	10,900	0	0
Delaware	**82,000**	**4,000**	**0**	**22,300**	**0**	**43,800**	**0**	**0**
Delaware City Refining Co LLC								
Delaware City	82,000	4,000	0	22,300	0	43,800	0	0
Hawaii	**22,000**	**0**	**2,000**	**18,000**	**0**	**13,500**	**0**	**0**
Chevron USA Inc								
Honolulu	22,000	0	0	0	0	0	0	0
Hawaii Independent Energy LLC								
Ewa Beach	0	0	2,000	18,000	0	13,500	0	0
Illinois	**324,300**	**0**	**0**	**92,000**	**0**	**212,800**	**34,900**	**0**
ExxonMobil Refining & Supply Co								
Joliet	99,300	0	0	0	0	52,600	0	0
Marathon Petroleum Co LP								
Robinson	54,500	0	0	38,000	0	80,500	0	0
PDV Midwest Refining LLC								
Lemont	69,500	0	0	0	0	0	34,900	0
WRB Refining LP								
Wood River	101,000	0	0	54,000	0	79,700	0	0
Indiana	**183,200**	**7,200**	**0**	**0**	**0**	**6,500**	**65,000**	**0**
BP Products North America Inc								
Whiting	175,000	7,000	0	0	0	0	65,000	0
Countrymark Cooperative Inc								
Mount Vernon	8,200	200	0	0	0	6,500	0	0
Kansas	**104,000**	**500**	**0**	**38,500**	**0**	**57,500**	**23,500**	**0**
CHS McPherson Refinery Inc								
McPherson	24,000	500	0	38,500	0	24,000	0	0
Coffeyville Resources Rfg & Mktg								
Coffeyville	36,000	0	0	0	0	26,000	0	0

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(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
California	**443,100**	**270,500**	**198,100**	**339,300**	**122,100**	**0**	**723,000**	**70,200**
Shell Oil Products US								
Martinez	27,500	92,500	0	0	49,000	0	84,500	14,500
Tesoro Refining & Marketing Co								
Carson	45,000	27,000	10,000	21,000	0	0	95,000	0
Martinez	27,000	43,000	0	40,000	18,500	0	69,500	0
Wilmington	34,000	0	19,000	10,000	23,000	0	45,000	0
Valero Refining Co California								
Benicia	30,000	43,200	15,400	15,000	5,000	0	39,000	21,700
Wilmington Asphalt Plant	0	0	0	0	0	0	0	0
Wilmington Refinery	32,000	0	0	45,000	0	0	67,000	0
Colorado	**21,900**	**0**	**12,100**	**21,000**	**0**	**0**	**30,000**	**0**
Suncor Energy (USA) Inc								
Commerce City East	11,000	0	0	0	0	0	0	0
Commerce City West	10,900	0	12,100	21,000	0	0	30,000	0
Delaware	**50,000**	**32,000**	**16,500**	**52,000**	**0**	**0**	**0**	**0**
Delaware City Refining Co LLC								
Delaware City	50,000	32,000	16,500	52,000	0	0	0	0
Hawaii	**13,000**	**0**	**0**	**0**	**0**	**0**	**0**	**3,500**
Chevron USA Inc								
Honolulu	0	0	0	0	0	0	0	3,500
Hawaii Independent Energy LLC								
Ewa Beach	13,000	0	0	0	0	0	0	0
Illinois	**432,000**	**115,500**	**66,950**	**315,400**	**0**	**0**	**0**	**6,800**
ExxonMobil Refining & Supply Co								
Joliet	169,500	0	0	85,100	0	0	0	0
Marathon Petroleum Co LP								
Robinson	68,000	41,500	0	79,500	0	0	0	0
PDV Midwest Refining LLC								
Lemont	110,200	0	13,700	94,500	0	0	0	6,800
WRB Refining LP								
Wood River	84,300	74,000	53,250	56,300	0	0	0	0
Indiana	**78,000**	**6,500**	**46,000**	**134,500**	**0**	**0**	**204,000**	**0**
BP Products North America Inc								
Whiting	69,000	0	46,000	120,800	0	0	204,000	0
Countrymark Cooperative Inc								
Mount Vernon	9,000	6,500	0	13,700	0	0	0	0
Kansas	**122,500**	**22,000**	**21,000**	**127,200**	**27,000**	**0**	**50,000**	**0**
CHS McPherson Refinery Inc								
McPherson	38,000	0	0	43,200	0	0	0	0
Coffeyville Resources Rfg & Mktg								
Coffeyville	36,000	22,000	9,000	30,000	27,000	0	0	0

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(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Kansas	**339,000**	**0**	**355,000**	**0**	**148,000**	**69,000**	**0**	**0**	**0**
HollyFrontier El Dorado Refining LLC									
El Dorado	138,000	0	141,000	0	64,000	19,000	0	0	0
Kentucky	**278,500**	**0**	**298,300**	**0**	**122,000**	**0**	**0**	**0**	**0**
Continental Refining Company LLC									
Somerset	5,500	0	6,300	0	0	0	0	0	0
Marathon Petroleum Co LP									
Catlettsburg	273,000	0	292,000	0	122,000	0	0	0	0
Louisiana	**3,348,820**	**0**	**3,504,355**	**0**	**1,761,000**	**553,500**	**0**	**0**	**10,600**
Alon Refining Krotz Springs Inc									
Krotz Springs	80,000	0	83,000	0	36,200	0	0	0	0
Calcasieu Refining Co									
Lake Charles	89,000	0	90,000	0	30,000	0	0	0	0
Calumet Lubricants Co LP									
Cotton Valley	13,020	0	14,000	0	0	0	0	0	0
Princeton	8,300	0	8,655	0	7,000	0	0	0	0
Calumet Shreveport LLC									
Shreveport	57,000	0	60,000	0	28,000	0	0	0	0
Chalmette Refining LLC									
Chalmette	192,500	0	197,000	0	169,000	28,000	0	0	0
Citgo Petroleum Corp									
Lake Charles	427,800	0	440,000	0	230,000	110,000	0	0	0
Excel Paralubes									
Westlake	0	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co									
Baton Rouge	502,500	0	523,200	0	246,100	123,500	0	0	0
Marathon Petroleum Co LP									
Garyville	539,000	0	574,000	0	297,000	93,500	0	0	0
Motiva Enterprises LLC									
Convent	235,000	0	255,000	0	119,400	0	0	0	0
Norco	237,700	0	250,000	0	91,300	28,500	0	0	0
Phillips 66 Company									
Belle Chasse	247,000	0	260,000	0	103,000	26,000	0	0	0
Westlake	260,000	0	273,000	0	132,000	60,000	0	0	10,600
Placid Refining Co									
Port Allen	75,000	0	82,500	0	27,000	0	0	0	0
Shell Oil Products US									
Saint Rose	45,000	0	46,000	0	25,000	0	0	0	0
Valero Energy Corporation									
Meraux	125,000	0	128,000	0	60,000	0	0	0	0
Valero Refining New Orleans LLC									
Norco	215,000	0	220,000	0	160,000	84,000	0	0	0
Michigan	**132,000**	**0**	**144,000**	**0**	**77,500**	**30,000**	**0**	**0**	**0**
Marathon Petroleum Co LP									
Detroit	132,000	0	144,000	0	77,500	30,000	0	0	0

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(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Kansas	**104,000**	**500**	**0**	**38,500**	**0**	**57,500**	**23,500**	**0**
HollyFrontier El Dorado Refining LLC								
El Dorado	44,000	0	0	0	0	7,500	23,500	0
Kentucky	**104,000**	**0**	**0**	**0**	**0**	**21,500**	**32,300**	**13,000**
Continental Refining Company LLC								
Somerset	0	0	0	0	0	0	1,300	0
Marathon Petroleum Co LP								
Catlettsburg	104,000	0	0	0	0	21,500	31,000	13,000
Louisiana	**1,130,900**	**5,500**	**55,000**	**370,100**	**52,000**	**501,290**	**106,200**	**71,000**
Alon Refining Krotz Springs Inc								
Krotz Springs	34,000	0	0	0	0	0	13,000	0
Calcasieu Refining Co								
Lake Charles	0	0	0	0	0	0	0	0
Calumet Lubricants Co LP								
Cotton Valley	0	0	0	0	0	0	0	0
Princeton	0	0	0	0	0	0	0	0
Calumet Shreveport LLC								
Shreveport	0	0	0	0	0	12,000	0	0
Chalmette Refining LLC								
Chalmette	75,600	0	0	0	0	22,700	0	0
Citgo Petroleum Corp								
Lake Charles	148,000	3,000	0	47,400	0	59,600	53,200	0
Excel Paralubes								
Westlake	0	0	0	43,000	0	0	0	0
ExxonMobil Refining & Supply Co								
Baton Rouge	244,500	0	27,000	0	0	76,000	0	0
Marathon Petroleum Co LP								
Garyville	138,000	0	0	117,000	0	128,000	0	38,000
Motiva Enterprises LLC								
Convent	92,000	0	0	0	52,000	0	40,000	0
Norco	118,800	0	0	44,000	0	40,000	0	0
Phillips 66 Company								
Belle Chasse	105,000	2,000	0	0	0	48,490	0	0
Westlake	50,000	0	0	0	0	44,000	0	0
Placid Refining Co								
Port Allen	25,000	500	0	0	0	11,000	0	11,000
Shell Oil Products US								
Saint Rose	0	0	0	0	0	0	0	0
Valero Energy Corporation								
Meraux	0	0	0	48,700	0	32,000	0	22,000
Valero Refining New Orleans LLC								
Norco	100,000	0	28,000	70,000	0	27,500	0	0
Michigan	**40,000**	**0**	**0**	**0**	**0**	**21,500**	**0**	**0**
Marathon Petroleum Co LP								
Detroit	40,000	0	0	0	0	21,500	0	0

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State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Kansas	**122,500**	**22,000**	**21,000**	**127,200**	**27,000**	**0**	**50,000**	**0**
HollyFrontier El Dorado Refining LLC								
El Dorado	48,500	0	12,000	54,000	0	0	50,000	0
Kentucky	**54,800**	**0**	**31,000**	**78,350**	**0**	**0**	**107,000**	**0**
Continental Refining Company LLC								
Somerset	1,300	0	0	850	0	0	0	0
Marathon Petroleum Co LP								
Catlettsburg	53,500	0	31,000	77,500	0	0	107,000	0
Louisiana	**699,340**	**759,900**	**240,200**	**891,300**	**44,000**	**12,500**	**305,700**	**25,000**
Alon Refining Krotz Springs Inc								
Krotz Springs	14,000	18,000	0	0	0	0	0	0
Calcasieu Refining Co								
Lake Charles	0	0	0	0	0	0	0	0
Calumet Lubricants Co LP								
Cotton Valley	6,200	0	0	0	0	0	0	0
Princeton	0	0	0	0	0	0	0	0
Calumet Shreveport LLC								
Shreveport	16,000	0	0	14,000	0	0	21,100	1,200
Chalmette Refining LLC								
Chalmette	22,400	44,000	0	31,000	0	0	65,600	0
Citgo Petroleum Corp								
Lake Charles	127,000	85,400	68,000	100,000	0	0	0	23,800
Excel Paralubes								
Westlake	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co								
Baton Rouge	76,000	238,000	0	202,500	0	0	0	0
Marathon Petroleum Co LP								
Garyville	108,000	114,000	80,000	159,000	0	0	106,000	0
Motiva Enterprises LLC								
Convent	98,000	0	39,800	70,000	0	0	40,000	0
Norco	38,500	77,000	0	70,000	0	0	0	0
Phillips 66 Company								
Belle Chasse	50,540	65,000	0	74,800	0	0	0	0
Westlake	50,000	38,500	24,000	55,000	0	12,500	49,000	0
Placid Refining Co								
Port Allen	11,000	20,000	0	25,000	0	0	0	0
Shell Oil Products US								
Saint Rose	0	0	0	0	0	0	0	0
Valero Energy Corporation								
Meraux	37,700	0	16,400	40,000	0	0	0	0
Valero Refining New Orleans LLC								
Norco	44,000	60,000	12,000	50,000	44,000	0	24,000	0
Michigan	**33,500**	**0**	**7,000**	**46,000**	**0**	**0**	**43,500**	**0**
Marathon Petroleum Co LP								
Detroit	33,500	0	7,000	46,000	0	0	43,500	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Minnesota	**378,900**	**0**	**436,800**	**0**	**278,000**	**67,000**	**0**	**0**	**0**
Flint Hills Resources LP									
Saint Paul	290,000	0	339,000	0	234,000	67,000	0	0	0
St Paul Park Refining Co LLC									
Saint Paul	88,900	0	97,800	0	44,000	0	0	0	0
Mississippi	**364,000**	**0**	**397,500**	**0**	**338,875**	**105,000**	**0**	**0**	**0**
Chevron USA Inc									
Pascagoula	330,000	0	360,000	0	314,000	105,000	0	0	0
Ergon Refining Inc									
Vicksburg	23,000	0	25,000	0	18,000	0	0	0	0
Hunt Southland Refining Co									
Sandersville	11,000	0	12,500	0	6,875	0	0	0	0
Montana	**203,600**	**9,600**	**212,400**	**10,000**	**115,000**	**36,700**	**10,400**	**0**	**0**
Calumet Montana Refining LLC									
Great Falls	24,000	9,600	25,000	10,000	20,000	0	0	0	0
Cenex Harvest States Coop									
Laurel	59,600	0	61,100	0	29,000	15,000	0	0	0
ExxonMobil Refining & Supply Co									
Billings	60,000	0	62,900	0	28,900	0	10,400	0	0
Phillips 66 Company									
Billings	60,000	0	63,400	0	37,100	21,700	0	0	0
Nevada	**2,000**	**0**	**5,000**	**0**	**2,750**	**0**	**0**	**0**	**0**
Foreland Refining Corp									
Ely	2,000	0	5,000	0	2,750	0	0	0	0
New Jersey	**440,000**	**32,000**	**460,000**	**35,000**	**197,000**	**27,000**	**0**	**0**	**0**
Axeon Specialty Products LLC									
Paulsboro	42,000	32,000	43,000	35,000	32,000	0	0	0	0
Paulsboro Refining Co LLC									
Paulsboro	160,000	0	166,000	0	90,000	27,000	0	0	0
Phillips 66 Company									
Linden	238,000	0	251,000	0	75,000	0	0	0	0
New Mexico	**127,500**	**0**	**141,000**	**0**	**29,600**	**0**	**0**	**0**	**0**
HollyFrontier Navajo Refining LLC									
Artesia	102,000	0	115,000	0	29,600	0	0	0	0
Western Refining Southwest Inc									
Gallup	25,500	0	26,000	0	0	0	0	0	0
North Dakota	**93,360**	**0**	**94,600**	**0**	**0**	**0**	**0**	**0**	**0**
Dakota Prairie Refining LLC									
Dickinson	19,500	0	20,000	0	0	0	0	0	0
Tesoro West Coast									
Mandan	73,860	0	74,600	0	0	0	0	0	0
Ohio	**558,000**	**0**	**618,000**	**0**	**159,500**	**58,000**	**0**	**0**	**0**
BP-Husky Refining LLC									
Toledo	153,000	0	160,000	0	71,500	35,000	0	0	0
Lima Refining Company									
Lima	152,000	0	170,000	0	53,000	23,000	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Minnesota	**115,500**	**2,500**	**50,000**	**0**	**0**	**37,000**	**38,300**	**0**
Flint Hills Resources LP								
Saint Paul	87,000	0	50,000	0	0	37,000	13,800	0
St Paul Park Refining Co LLC								
Saint Paul	28,500	2,500	0	0	0	0	24,500	0
Mississippi	**88,000**	**0**	**0**	**117,500**	**0**	**61,600**	**34,000**	**0**
Chevron USA Inc								
Pascagoula	88,000	0	0	117,500	0	61,600	34,000	0
Ergon Refining Inc								
Vicksburg	0	0	0	0	0	0	0	0
Hunt Southland Refining Co								
Sandersville	0	0	0	0	0	0	0	0
Montana	**64,660**	**990**	**6,200**	**24,000**	**0**	**12,500**	**27,050**	**0**
Calumet Montana Refining LLC								
Great Falls	3,000	0	0	24,000	0	0	1,000	0
Cenex Harvest States Coop								
Laurel	16,500	0	0	0	0	12,500	0	0
ExxonMobil Refining & Supply Co								
Billings	23,660	0	6,200	0	0	0	12,500	0
Phillips 66 Company								
Billings	21,500	990	0	0	0	0	13,550	0
Nevada	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Foreland Refining Corp								
Ely	0	0	0	0	0	0	0	0
New Jersey	**200,000**	**0**	**0**	**0**	**0**	**64,000**	**0**	**22,000**
Axeon Specialty Products LLC								
Paulsboro	0	0	0	0	0	0	0	0
Paulsboro Refining Co LLC								
Paulsboro	55,000	0	0	0	0	32,000	0	0
Phillips 66 Company								
Linden	145,000	0	0	0	0	32,000	0	22,000
New Mexico	**35,500**	**3,000**	**0**	**0**	**0**	**24,000**	**7,300**	**0**
HollyFrontier Navajo Refining LLC								
Artesia	27,000	0	0	0	0	24,000	0	0
Western Refining Southwest Inc								
Gallup	8,500	3,000	0	0	0	0	7,300	0
North Dakota	**27,000**	**3,600**	**0**	**0**	**0**	**0**	**12,500**	**0**
Dakota Prairie Refining LLC								
Dickinson	0	0	0	0	0	0	0	0
Tesoro West Coast								
Mandan	27,000	3,600	0	0	0	0	12,500	0
Ohio	**208,300**	**0**	**52,000**	**31,000**	**0**	**63,500**	**106,800**	**0**
BP-Husky Refining LLC								
Toledo	55,000	0	0	31,000	0	42,000	0	0
Lima Refining Company								
Lima	45,300	0	0	0	0	0	55,000	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Minnesota	**74,800**	**49,700**	**53,600**	**93,500**	**9,000**	**0**	**144,500**	**0**
Flint Hills Resources LP								
Saint Paul	49,800	49,700	43,500	62,000	9,000	0	115,000	0
St Paul Park Refining Co LLC								
Saint Paul	25,000	0	10,100	31,500	0	0	29,500	0
Mississippi	**57,300**	**0**	**30,000**	**37,200**	**0**	**0**	**104,000**	**70,800**
Chevron USA Inc								
Pascagoula	57,300	0	30,000	35,000	0	0	104,000	50,000
Ergon Refining Inc								
Vicksburg	0	0	0	2,200	0	0	0	20,800
Hunt Southland Refining Co								
Sandersville	0	0	0	0	0	0	0	0
Montana	**46,950**	**26,500**	**18,400**	**46,750**	**25,000**	**0**	**45,760**	**7,900**
Calumet Montana Refining LLC								
Great Falls	2,500	0	5,000	6,000	0	0	0	0
Cenex Harvest States Coop								
Laurel	17,000	0	0	0	25,000	0	20,000	0
ExxonMobil Refining & Supply Co								
Billings	13,900	20,500	7,600	11,000	0	0	0	7,900
Phillips 66 Company								
Billings	13,550	6,000	5,800	29,750	0	0	25,760	0
Nevada	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Foreland Refining Corp								
Ely	0	0	0	0	0	0	0	0
New Jersey	**97,500**	**37,000**	**29,100**	**154,000**	**17,500**	**0**	**0**	**0**
Axeon Specialty Products LLC								
Paulsboro	0	0	0	0	0	0	0	0
Paulsboro Refining Co LLC								
Paulsboro	32,000	37,000	29,100	46,000	0	0	0	0
Phillips 66 Company								
Linden	65,500	0	0	108,000	17,500	0	0	0
New Mexico	**43,600**	**0**	**12,000**	**45,500**	**0**	**0**	**51,000**	**0**
HollyFrontier Navajo Refining LLC								
Artesia	36,000	0	12,000	41,000	0	0	51,000	0
Western Refining Southwest Inc								
Gallup	7,600	0	0	4,500	0	0	0	0
North Dakota	**13,600**	**0**	**0**	**31,800**	**5,700**	**0**	**0**	**0**
Dakota Prairie Refining LLC								
Dickinson	0	0	0	8,000	0	0	0	0
Tesoro West Coast								
Mandan	13,600	0	0	23,800	5,700	0	0	0
Ohio	**179,400**	**107,000**	**69,500**	**81,500**	**0**	**0**	**78,000**	**0**
BP-Husky Refining LLC								
Toledo	40,000	0	0	22,000	0	0	51,000	0
Lima Refining Company								
Lima	63,000	35,000	24,000	36,000	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Ohio	**558,000**	**0**	**618,000**	**0**	**159,500**	**58,000**	**0**	**0**	**0**
Marathon Petroleum Co LP									
Canton	93,000	0	100,000	0	35,000	0	0	0	0
Toledo Refining Co LLC									
Toledo	160,000	0	188,000	0	0	0	0	0	0
Oklahoma	**511,300**	**0**	**547,247**	**0**	**219,554**	**38,385**	**0**	**0**	**0**
HollyFrontier Tulsa Refining LLC									
Tulsa East	70,300	0	75,500	0	27,000	0	0	0	0
Tulsa West	85,000	0	90,000	0	32,000	11,000	0	0	0
Phillips 66 Company									
Ponca City	200,000	0	218,747	0	88,254	27,385	0	0	0
Valero Refining Co Oklahoma									
Ardmore	86,000	0	88,000	0	32,000	0	0	0	0
Wynnewood Refining Co									
Wynnewood	70,000	0	75,000	0	40,300	0	0	0	0
Pennsylvania	**601,000**	**0**	**644,800**	**0**	**276,200**	**0**	**0**	**0**	**0**
American Refining Group Inc									
Bradford	11,000	0	11,800	0	0	0	0	0	0
Monroe Energy LLC									
Trainer	190,000	0	208,000	0	73,000	0	0	0	0
Philadelphia Energy Solutions									
Philadelphia	335,000	0	355,000	0	163,200	0	0	0	0
United Refining Co									
Warren	65,000	0	70,000	0	40,000	0	0	0	0
Tennessee	**190,000**	**0**	**195,000**	**0**	**0**	**0**	**0**	**0**	**0**
Premcor Refining Group Inc									
Memphis	190,000	0	195,000	0	0	0	0	0	0
Texas	**5,452,250**	**0**	**5,841,700**	**0**	**2,605,000**	**893,080**	**42,000**	**0**	**0**
Alon USA Energy Inc									
Big Spring	73,000	0	74,000	0	24,000	0	0	0	0
Buckeye Texas Processing LLC									
Corpus Christi	46,250	0	50,000	0	0	0	0	0	0
Calumet Lubricants Co									
San Antonio	20,000	0	21,000	0	0	0	0	0	0
Citgo Refining & Chemical Inc									
Corpus Christi	157,500	0	163,500	0	85,300	44,900	0	0	0
Deer Park Refining LTD Partnership									
Deer Park	285,500	0	340,000	0	180,000	90,000	0	0	0
Delek Refining LTD									
Tyler	72,000	0	75,000	0	28,000	6,500	0	0	0
Equistar Chemicals LP									
Channelview	0	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co									
Baytown	560,500	0	584,000	0	297,000	54,000	42,000	0	0
Beaumont	344,600	0	359,200	0	148,800	48,000	0	0	0
Flint Hills Resources LP									
Corpus Christi	295,630	0	304,000	0	87,500	15,500	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Ohio	**208,300**	**0**	**52,000**	**31,000**	**0**	**63,500**	**106,800**	**0**
Marathon Petroleum Co LP								
Canton	26,000	0	0	0	0	21,500	0	0
Toledo Refining Co LLC								
Toledo	82,000	0	52,000	0	0	0	51,800	0
Oklahoma	**151,813**	**2,000**	**14,000**	**18,200**	**0**	**61,500**	**53,593**	**4,850**
HollyFrontier Tulsa Refining LLC								
Tulsa East	25,000	2,000	0	0	0	23,000	0	0
Tulsa West	0	0	0	0	0	0	0	0
Phillips 66 Company								
Ponca City	74,613	0	0	0	0	0	53,593	0
Valero Refining Co Oklahoma								
Ardmore	30,000	0	14,000	0	0	20,500	0	0
Wynnewood Refining Co								
Wynnewood	22,200	0	0	18,200	0	18,000	0	4,850
Pennsylvania	**216,500**	**1,000**	**23,000**	**0**	**0**	**50,000**	**102,200**	**0**
American Refining Group Inc								
Bradford	0	0	0	0	0	0	2,200	0
Monroe Energy LLC								
Trainer	53,000	0	23,000	0	0	50,000	0	0
Philadelphia Energy Solutions								
Philadelphia	138,500	0	0	0	0	0	86,000	0
United Refining Co								
Warren	25,000	1,000	0	0	0	0	14,000	0
Tennessee	**70,000**	**0**	**26,500**	**0**	**0**	**36,000**	**0**	**0**
Premcor Refining Group Inc								
Memphis	70,000	0	26,500	0	0	36,000	0	0
Texas	**1,842,450**	**25,000**	**251,300**	**370,000**	**75,000**	**962,200**	**115,280**	**166,000**
Alon USA Energy Inc								
Big Spring	25,000	0	0	0	0	21,000	0	10,000
Buckeye Texas Processing LLC								
Corpus Christi	0	0	0	0	0	0	0	0
Calumet Lubricants Co								
San Antonio	0	0	0	0	0	0	6,000	0
Citgo Refining & Chemical Inc								
Corpus Christi	83,800	0	0	0	0	51,500	0	0
Deer Park Refining LTD Partnership								
Deer Park	75,000	5,000	0	60,000	0	45,000	24,500	0
Delek Refining LTD								
Tyler	20,250	0	0	0	0	13,000	4,500	0
Equistar Chemicals LP								
Channelview	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co								
Baytown	215,000	8,000	29,900	0	0	123,500	0	47,000
Beaumont	117,700	0	65,500	0	0	146,000	0	0
Flint Hills Resources LP								
Corpus Christi	110,000	0	15,000	0	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Ohio	**179,400**	**107,000**	**69,500**	**81,500**	**0**	**0**	**78,000**	**0**
Marathon Petroleum Co LP								
Canton	30,500	0	13,500	23,500	0	0	27,000	0
Toledo Refining Co LLC								
Toledo	45,900	72,000	32,000	0	0	0	0	0
Oklahoma	**157,493**	**97,984**	**18,500**	**134,581**	**34,355**	**0**	**58,338**	**35,548**
HollyFrontier Tulsa Refining LLC								
Tulsa East	22,000	29,000	0	45,000	0	0	0	0
Tulsa West	28,000	0	0	0	0	0	0	21,600
Phillips 66 Company								
Ponca City	53,593	53,984	18,500	31,981	34,355	0	23,888	13,948
Valero Refining Co Oklahoma								
Ardmore	27,000	0	0	32,000	0	0	34,450	0
Wynnewood Refining Co								
Wynnewood	26,900	15,000	0	25,600	0	0	0	0
Pennsylvania	**192,700**	**93,300**	**5,000**	**70,300**	**163,000**	**0**	**0**	**0**
American Refining Group Inc								
Bradford	3,600	0	0	0	0	0	0	0
Monroe Energy LLC								
Trainer	77,100	23,300	0	53,300	0	0	0	0
Philadelphia Energy Solutions								
Philadelphia	88,000	65,000	0	0	163,000	0	0	0
United Refining Co								
Warren	24,000	5,000	5,000	17,000	0	0	0	0
Tennessee	**52,000**	**39,000**	**0**	**38,000**	**0**	**0**	**0**	**0**
Premcor Refining Group Inc								
Memphis	52,000	39,000	0	38,000	0	0	0	0
Texas	**1,400,590**	**985,500**	**628,800**	**1,294,925**	**61,000**	**233,500**	**949,740**	**128,800**
Alon USA Energy Inc								
Big Spring	25,500	0	5,000	23,000	0	0	6,500	0
Buckeye Texas Processing LLC								
Corpus Christi	0	0	0	0	0	0	0	0
Calumet Lubricants Co								
San Antonio	6,000	0	0	7,000	0	0	0	0
Citgo Refining & Chemical Inc								
Corpus Christi	52,800	36,500	0	92,600	0	0	71,900	0
Deer Park Refining LTD Partnership								
Deer Park	75,500	43,000	40,000	0	45,000	49,500	80,000	43,000
Delek Refining LTD								
Tyler	28,000	13,000	0	36,000	0	0	0	0
Equistar Chemicals LP								
Channelview	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co								
Baytown	155,500	196,000	132,700	146,300	0	0	117,000	46,500
Beaumont	159,800	25,000	51,000	42,000	0	0	0	23,600
Flint Hills Resources LP								
Corpus Christi	85,800	75,000	54,000	73,000	0	0	54,000	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Texas	**5,452,250**	**0**	**5,841,700**	**0**	**2,605,000**	**893,080**	**42,000**	**0**	**0**
Houston Refining LP									
Houston	263,776	0	302,300	0	202,000	99,500	0	0	0
Kinder Morgan Crude & Condensate									
Galena Park	84,000	0	100,000	0	0	0	0	0	0
Lazarus Energy LLC									
Nixon	13,765	0	15,000	0	0	0	0	0	0
Marathon Petroleum Co LP									
Galveston Bay	459,000	0	481,000	0	237,000	33,000	0	0	0
Texas City	86,000	0	89,500	0	0	0	0	0	0
Motiva Enterprises LLC									
Port Arthur	603,000	0	635,000	0	331,800	164,500	0	0	0
Pasadena Refining Systems Inc									
Pasadena	112,229	0	115,700	0	38,000	0	0	0	0
Petromax Refining Co LLC									
Houston	25,000	0	27,500	0	0	0	0	0	0
Phillips 66 Company									
Sweeny	247,000	0	260,000	0	132,100	78,700	0	0	0
Premcor Refining Group Inc									
Port Arthur	335,000	0	415,000	0	220,000	99,600	0	0	0
South Hampton Resources Inc									
Silsbee	0	0	0	0	0	0	0	0	0
Total Petrochemicals & Refining USA									
Port Arthur	225,500	0	245,000	0	105,300	60,000	0	0	0
Valero Energy Corporation									
Sunray	168,000	0	172,000	0	50,000	0	0	0	0
Three Rivers	89,000	0	91,000	0	33,500	0	0	0	0
Valero Refining Co Texas LP									
Corpus Christi	293,000	0	300,000	0	97,000	17,000	0	0	0
Houston	100,000	0	103,000	0	38,000	0	0	0	0
Texas City	225,000	0	231,000	0	133,500	53,500	0	0	0
Western Refining Company LP									
El Paso	122,000	0	134,000	0	56,200	0	0	0	0
WRB Refining LP									
Borger	146,000	0	154,000	0	80,000	28,380	0	0	0
Utah	**181,050**	**0**	**193,100**	**0**	**34,500**	**9,000**	**0**	**0**	**0**
Big West Oil Co									
North Salt Lake	30,500	0	32,000	0	0	0	0	0	0
Chevron USA Inc									
Salt Lake City	53,000	0	56,000	0	27,500	9,000	0	0	0
HollyFrontier Woods Cross Refining LLC									
Woods Cross	25,050	0	26,400	0	0	0	0	0	0
Silver Eagle Refining									
Woods Cross	15,000	0	15,700	0	7,000	0	0	0	0
Tesoro West Coast									
Salt Lake City	57,500	0	63,000	0	0	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Texas	**1,842,450**	**25,000**	**251,300**	**370,000**	**75,000**	**962,200**	**115,280**	**166,000**
Houston Refining LP								
Houston	110,000	0	0	0	0	0	0	0
Kinder Morgan Crude & Condensate								
Galena Park	0	0	0	0	0	0	0	0
Lazarus Energy LLC								
Nixon	0	0	0	0	0	0	0	0
Marathon Petroleum Co LP								
Galveston Bay	200,500	0	69,000	0	75,000	138,000	0	17,000
Texas City	58,500	0	0	0	0	0	11,000	0
Motiva Enterprises LLC								
Port Arthur	90,000	0	0	82,000	0	129,500	0	0
Pasadena Refining Systems Inc								
Pasadena	52,000	0	0	0	0	22,000	0	0
Petromax Refining Co LLC								
Houston	0	0	0	0	0	0	0	0
Phillips 66 Company								
Sweeny	107,700	12,000	0	0	0	37,500	0	0
Premcor Refining Group Inc								
Port Arthur	75,000	0	0	123,000	0	55,000	0	0
South Hampton Resources Inc								
Silsbee	0	0	0	0	0	1,600	0	0
Total Petrochemicals & Refining USA								
Port Arthur	80,000	0	0	0	0	43,000	0	15,500
Valero Energy Corporation								
Sunray	54,500	0	0	27,000	0	29,000	18,000	14,500
Three Rivers	23,500	0	0	28,000	0	23,500	10,000	10,500
Valero Refining Co Texas LP								
Corpus Christi	95,500	0	0	50,000	0	39,000	10,000	0
Houston	71,500	0	71,900	0	0	0	0	18,000
Texas City	86,000	0	0	0	0	18,100	0	33,500
Western Refining Company LP								
El Paso	35,000	0	0	0	0	26,000	0	0
WRB Refining LP								
Borger	56,000	0	0	0	0	0	31,280	0
Utah	**61,860**	**3,000**	**0**	**9,000**	**0**	**0**	**36,800**	**6,000**
Big West Oil Co								
North Salt Lake	11,500	0	0	0	0	0	8,500	0
Chevron USA Inc								
Salt Lake City	15,000	0	0	0	0	0	8,500	0
HollyFrontier Woods Cross Refining LLC								
Woods Cross	9,360	0	0	9,000	0	0	8,400	6,000
Silver Eagle Refining								
Woods Cross	0	0	0	0	0	0	0	0
Tesoro West Coast								
Salt Lake City	26,000	3,000	0	0	0	0	11,400	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Texas	**1,400,590**	**985,500**	**628,800**	**1,294,925**	**61,000**	**233,500**	**949,740**	**128,800**
Houston Refining LP								
Houston	60,500	76,000	43,500	92,175	0	0	116,100	5,200
Kinder Morgan Crude & Condensate								
Galena Park	0	0	0	0	0	0	0	0
Lazarus Energy LLC								
Nixon	0	0	0	0	0	0	0	0
Marathon Petroleum Co LP								
Galveston Bay	121,000	57,000	79,000	55,000	0	0	105,000	0
Texas City	0	0	0	0	0	0	0	0
Motiva Enterprises LLC								
Port Arthur	163,150	55,000	78,000	153,300	0	0	50,000	0
Pasadena Refining Systems Inc								
Pasadena	22,000	40,000	0	0	16,000	0	0	0
Petromax Refining Co LLC								
Houston	0	0	0	0	0	0	0	0
Phillips 66 Company								
Sweeny	67,300	8,700	0	123,700	0	0	107,000	0
Premcor Refining Group Inc								
Port Arthur	48,700	85,000	33,000	104,600	0	0	60,000	0
South Hampton Resources Inc								
Silsbee	11,000	0	0	0	0	0	0	4,000
Total Petrochemicals & Refining USA								
Port Arthur	57,500	51,600	31,000	70,000	0	0	54,400	0
Valero Energy Corporation								
Sunray	43,000	39,600	0	47,500	0	0	0	0
Three Rivers	24,000	0	10,000	25,000	0	0	20,000	0
Valero Refining Co Texas LP								
Corpus Christi	64,000	60,000	11,000	63,250	0	74,000	30,000	0
Houston	9,000	32,900	14,100	0	0	0	0	0
Texas City	25,000	61,500	28,000	55,000	0	110,000	0	6,500
Western Refining Company LP								
El Paso	30,000	29,700	10,000	50,000	0	0	0	0
WRB Refining LP								
Borger	65,540	0	8,500	35,500	0	0	77,840	0
Utah	**44,700**	**8,000**	**2,900**	**49,800**	**28,800**	**0**	**0**	**7,200**
Big West Oil Co								
North Salt Lake	11,500	0	0	11,000	0	0	0	0
Chevron USA Inc								
Salt Lake City	8,300	0	0	13,300	18,000	0	0	7,200
HollyFrontier Woods Cross Refining LLC								
Woods Cross	12,500	0	2,900	0	10,800	0	0	0
Silver Eagle Refining								
Woods Cross	1,000	0	0	3,000	0	0	0	0
Tesoro West Coast								
Salt Lake City	11,400	8,000	0	22,500	0	0	0	0

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Atmospheric Crude Oil Distillation Capacity				Downstream Charge Capacity				
	Barrels per Calendar Day		Barrels per Stream Day			Thermal Cracking			
	Operating	Idle	Operating	Idle	Vacuum Distillation	Delayed Coking	Fluid Coking	Visbreaking	Other/Gas Oil
Washington	**633,700**	**0**	**659,500**	**0**	**294,700**	**82,800**	**0**	**0**	**0**
BP West Coast Products LLC									
Ferndale	227,000	0	236,000	0	112,000	57,500	0	0	0
Phillips 66 Company									
Ferndale	101,000	0	107,500	0	50,700	0	0	0	0
Shell Oil Products US									
Anacortes	145,000	0	149,000	0	65,800	25,300	0	0	0
Tesoro West Coast									
Anacortes	120,000	0	125,000	0	47,000	0	0	0	0
US Oil & Refining Co									
Tacoma	40,700	0	42,000	0	19,200	0	0	0	0
West Virginia	**22,300**	**0**	**23,000**	**0**	**8,600**	**0**	**0**	**0**	**0**
Ergon West Virginia Inc									
Newell	22,300	0	23,000	0	8,600	0	0	0	0
Wisconsin	**38,000**	**0**	**50,000**	**0**	**20,500**	**0**	**0**	**0**	**0**
Calumet Lubricants Co LP									
Superior	38,000	0	50,000	0	20,500	0	0	0	0
Wyoming	**177,500**	**3,800**	**189,400**	**4,500**	**72,500**	**33,700**	**0**	**0**	**0**
Antelope Refining LLC									
Douglas	0	3,800	0	4,500	3,500	0	0	0	0
HollyFrontier Cheyenne Refining LLC									
Cheyenne	47,000	0	52,000	0	28,000	13,700	0	0	0
Little America Refining Co									
Evansville	24,500	0	25,500	0	0	0	0	0	0
Silver Eagle Refining									
Evanston	3,000	0	3,400	0	0	0	0	0	0
Sinclair Wyoming Refining Co									
Sinclair	85,000	0	90,000	0	41,000	20,000	0	0	0
Wyoming Refining Co									
New Castle	18,000	0	18,500	0	0	0	0	0	0
U.S. Total	**18,165,136**	**151,900**	**19,345,102**	**162,500**	**9,073,285**	**2,797,765**	**158,900**	**16,000**	**10,600**

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Catalytic Cracking		Catalytic Hydrocracking			Catalytic Reforming		
	Fresh	Recycled	Distillate	Gas Oil	Residual	Low Pressure	High Pressure	Fuels Solvent Deasphalting
Washington	**148,400**	**3,000**	**0**	**65,000**	**0**	**109,400**	**28,500**	**24,300**
BP West Coast Products LLC								
Ferndale	0	0	0	65,000	0	65,000	0	0
Phillips 66 Company								
Ferndale	38,500	0	0	0	0	18,400	0	0
Shell Oil Products US								
Anacortes	57,900	0	0	0	0	0	21,700	0
Tesoro West Coast								
Anacortes	52,000	3,000	0	0	0	26,000	0	24,300
US Oil & Refining Co								
Tacoma	0	0	0	0	0	0	6,800	0
West Virginia	**0**	**0**	**0**	**0**	**0**	**3,950**	**0**	**0**
Ergon West Virginia Inc								
Newell	0	0	0	0	0	3,950	0	0
Wisconsin	**11,000**	**0**	**0**	**0**	**0**	**8,000**	**0**	**0**
Calumet Lubricants Co LP								
Superior	11,000	0	0	0	0	8,000	0	0
Wyoming	**53,500**	**500**	**15,600**	**0**	**0**	**14,200**	**21,400**	**0**
Antelope Refining LLC								
Douglas	0	0	0	0	0	0	0	0
HollyFrontier Cheyenne Refining LLC								
Cheyenne	12,500	0	0	0	0	9,200	0	0
Little America Refining Co								
Evansville	11,500	500	0	0	0	5,000	0	0
Silver Eagle Refining								
Evanston	0	0	0	0	0	0	2,900	0
Sinclair Wyoming Refining Co								
Sinclair	22,000	0	15,600	0	0	0	14,500	0
Wyoming Refining Co								
New Castle	7,500	0	0	0	0	0	4,000	0
U.S. Total	**6,052,183**	**75,690**	**687,400**	**1,503,200**	**127,000**	**2,658,740**	**1,084,323**	**370,550**

Table 3. Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Downstream Charge Capacity							
	Desulfurization (incl. Catalytic Hydrotreating)							
	Naphtha/ Reformer Feed	Gasoline	Kerosene/ Jet Fuel	Diesel Fuel	Other Distillate	Residual	Heavy Gas Oil	Other
Washington	**176,100**	**90,300**	**39,000**	**162,500**	**0**	**0**	**0**	**0**
BP West Coast Products LLC								
Ferndale	74,000	0	20,000	55,000	0	0	0	0
Phillips 66 Company								
Ferndale	19,000	22,100	0	32,300	0	0	0	0
Shell Oil Products US								
Anacortes	33,500	35,700	19,000	40,700	0	0	0	0
Tesoro West Coast								
Anacortes	39,200	32,500	0	26,300	0	0	0	0
US Oil & Refining Co								
Tacoma	10,400	0	0	8,200	0	0	0	0
West Virginia	**4,300**	**0**	**0**	**9,000**	**0**	**0**	**6,300**	**0**
Ergon West Virginia Inc								
Newell	4,300	0	0	9,000	0	0	6,300	0
Wisconsin	**11,000**	**7,500**	**7,700**	**6,500**	**0**	**0**	**0**	**0**
Calumet Lubricants Co LP								
Superior	11,000	7,500	7,700	6,500	0	0	0	0
Wyoming	**44,400**	**16,500**	**15,000**	**52,500**	**0**	**0**	**20,000**	**0**
Antelope Refining LLC								
Douglas	0	0	0	0	0	0	0	0
HollyFrontier Cheyenne Refining LLC								
Cheyenne	10,000	10,000	0	18,000	0	0	0	0
Little America Refining Co								
Evansville	7,500	6,500	0	10,500	0	0	0	0
Silver Eagle Refining								
Evanston	3,900	0	0	0	0	0	0	0
Sinclair Wyoming Refining Co								
Sinclair	19,000	0	15,000	18,000	0	0	20,000	0
Wyoming Refining Co								
New Castle	4,000	0	0	6,000	0	0	0	0
U.S. Total	**4,614,073**	**2,773,434**	**1,570,850**	**4,375,906**	**561,455**	**246,000**	**2,971,838**	**369,248**

Note: Refer to Table 5 for corporate ownership information. Some names of previously independent companies have been preserved by acquiring companies.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Directory of Operable Petroleum Refineries on Tables 3 and 4

Refiner	State(s)	Refiner	State(s)
Alon Bakersfield Operating Inc	CA	Hunt Southland Refining Co	MS
Alon Refining Krotz Springs Inc	LA	Kern Oil & Refining Co	CA
Alon USA Energy Inc	TX	Kinder Morgan Crude & Condensate	TX
American Refining Group Inc	PA	Lazarus Energy LLC	TX
Antelope Refining LLC	WY	Lima Refining Company	OH
Axeon Specialty Products LLC	NJ	Lion Oil Co	AR
BP Exploration Alaska Inc	AK	Little America Refining Co	WY
BP Products North America Inc	IN	Lunday Thagard Co	CA
BP West Coast Products LLC	WA	Marathon Petroleum Co LP	IL, KY, LA, MI, OH, TX
BP-Husky Refining LLC	OH	Monroe Energy LLC	PA
Big West Oil Co	UT	Motiva Enterprises LLC	LA, TX
Buckeye Texas Processing LLC	TX	PDV Midwest Refining LLC	IL
CHS McPherson Refinery Inc	KS	Paramount Petroleum Corporation	CA
Calcasieu Refining Co	LA	Pasadena Refining Systems Inc	TX
Calumet Lubricants Co	TX	Paulsboro Refining Co LLC	NJ
Calumet Lubricants Co LP	LA, WI	Petro Star Inc	AK
Calumet Montana Refining LLC	MT	Petromax Refining Co LLC	TX
Calumet Shreveport LLC	LA	Philadelphia Energy Solutions	PA
Cenex Harvest States Coop	MT	Phillips 66 Company	CA, LA, MT, NJ, OK, TX, WA
Chalmette Refining LLC	LA	Placid Refining Co	LA
Chevron USA Inc	CA, HI, MS, UT	Premcor Refining Group Inc	TN, TX
Citgo Petroleum Corp	LA	San Joaquin Refining Co Inc	CA
Citgo Refining & Chemical Inc	TX	Santa Maria Refining Company	CA
Coffeyville Resources Rfg & Mktg	KS	Shell Chemical LP	AL
ConocoPhillips Alaska Inc	AK	Shell Oil Products US	CA, LA, WA
Continental Refining Company LLC	KY	Silver Eagle Refining	UT, WY
Countrymark Cooperative Inc	IN	Sinclair Wyoming Refining Co	WY
Cross Oil Refining & Marketing Inc	AR	South Hampton Resources Inc	TX
Dakota Prairie Refining LLC	ND	St Paul Park Refining Co LLC	MN
Deer Park Refining LTD Partnership	TX	Suncor Energy (USA) Inc	CO
Delaware City Refining Co LLC	DE	Tesoro Alaska Petroleum Co	AK
Delek Refining LTD	TX	Tesoro Refining & Marketing Co	CA
Equistar Chemicals LP	TX	Tesoro West Coast	ND, UT, WA
Ergon Refining Inc	MS	Toledo Refining Co LLC	OH
Ergon West Virginia Inc	WV	Total Petrochemicals & Refining USA	TX
Excel Paralubes	LA	US Oil & Refining Co	WA
ExxonMobil Refining & Supply Co	CA, IL, LA, MT, TX	United Refining Co	PA
Flint Hills Resources LP	MN, TX	Valero Energy Corporation	LA, TX
Foreland Refining Corp	NV	Valero Refining Co California	CA
Goodway Refining LLC	AL	Valero Refining Co Oklahoma	OK
Hawaii Independent Energy LLC	HI	Valero Refining Co Texas LP	TX
HollyFrontier Cheyenne Refining LLC	WY	Valero Refining New Orleans LLC	LA
HollyFrontier El Dorado Refining LLC	KS	WRB Refining LP	IL, TX
HollyFrontier Navajo Refining LLC	NM	Western Refining Company LP	TX
HollyFrontier Tulsa Refining LLC	OK	Western Refining Southwest Inc	NM
HollyFrontier Woods Cross Refining LLC	UT	Wynnewood Refining Co	OK
Houston Refining LP	TX	Wyoming Refining Co	WY
Hunt Refining Co	AL		

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Alabama	**0**	**0**	**15,000**	**1,150**	**4,200**	**0**	**0**	**7,120**	**40**	**228**
Hunt Refining Co										
Tuscaloosa	0	0	15,000	0	4,200	0	0	7,120	40	195
Shell Chemical LP										
Saraland	0	0	0	1,150	0	0	0	0	0	33
Alaska	**0**	**0**	**10,000**	**0**	**5,000**	**0**	**0**	**0**	**13**	**27**
Tesoro Alaska Petroleum Co										
Kenai	0	0	10,000	0	5,000	0	0	0	13	27
Arkansas	**5,000**	**0**	**21,500**	**0**	**7,500**	**0**	**5,500**	**0**	**13**	**157**
Cross Oil Refining & Marketing Inc										
Smackover	0	0	1,000	0	0	0	5,500	0	3	0
Lion Oil Co										
El Dorado	5,000	0	20,500	0	7,500	0	0	0	10	157
California	**201,562**	**1,500**	**48,833**	**40,400**	**129,600**	**200**	**39,800**	**143,000**	**1,088**	**5,092**
Alon Bakersfield Operating Inc										
Bakersfield	0	0	0	300	500	200	0	0	23	70
Chevron USA Inc										
El Segundo	32,200	0	0	10,500	22,300	0	0	25,500	77	894
Richmond	32,662	0	0	7,200	46,000	0	34,000	0	181	789
ExxonMobil Refining & Supply Co										
Torrance	24,200	0	0	0	0	0	0	16,700	146	400
Kern Oil & Refining Co										
Bakersfield	0	0	0	0	0	0	0	0	0	11
Lunday Thagard Co										
South Gate	0	0	5,833	0	0	0	0	0	0	0

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Paramount Petroleum Corporation										
Paramount	0	0	16,500	0	0	0	0	0	0	40
Phillips 66 Company										
Rodeo	0	0	0	3,800	10,000	0	0	14,500	22	560
Wilmington	16,000	0	0	3,100	12,800	0	0	16,800	105	370
San Joaquin Refining Co Inc										
Bakersfield	0	1,500	8,000	0	0	0	5,800	0	4	6
Santa Maria Refining Company										
Santa Maria	0	0	6,000	0	0	0	0	0	0	0
Shell Oil Products US										
Martinez	12,500	0	0	0	15,000	0	0	9,000	193	413
Tesoro Refining & Marketing Co										
Carson	17,000	0	0	3,500	23,000	0	0	16,700	105	476
Martinez	15,400	0	0	0	0	0	0	15,000	82	200
Wilmington	12,500	0	0	7,800	0	0	0	12,000	15	280
Valero Refining Co California										
Benicia	17,100	0	9,000	4,200	0	0	0	6,800	135	303
Wilmington Asphalt Plant	0	0	3,500	0	0	0	0	0	0	0
Wilmington Refinery	22,000	0	0	0	0	0	0	10,000	0	280
Colorado	**0**	**0**	**12,250**	**985**	**0**	**0**	**0**	**0**	**22**	**116**
Suncor Energy (USA) Inc										
Commerce City East	0	0	0	985	0	0	0	0	0	2
Commerce City West	0	0	12,250	0	0	0	0	0	22	114
Delaware	**11,729**	**5,191**	**0**	**6,000**	**0**	**0**	**0**	**13,620**	**40**	**596**
Delaware City Refining Co LLC										
Delaware City	11,729	5,191	0	6,000	0	0	0	13,620	40	596
Hawaii	**5,000**	**0**	**15,000**	**3,200**	**0**	**0**	**0**	**0**	**21**	**38**

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Chevron USA Inc										
Honolulu	5,000	0	0	3,200	0	0	0	0	3	0
Hawaii Independent Energy LLC										
Ewa Beach	0	0	15,000	0	0	0	0	0	18	38
Illinois	**84,900**	**17,200**	**38,100**	**0**	**16,000**	**0**	**0**	**65,995**	**202**	**2,380**
ExxonMobil Refining & Supply Co										
Joliet	29,100	0	15,100	0	0	0	0	18,595	0	683
Marathon Petroleum Co LP										
Robinson	13,000	3,300	0	0	16,000	0	0	7,500	0	202
PDV Midwest Refining LLC										
Lemont	21,000	9,400	0	0	0	0	0	12,000	12	487
WRB Refining LP										
Wood River	21,800	4,500	23,000	0	0	0	0	27,900	190	1,008
Indiana	**33,200**	**16,800**	**33,700**	**0**	**28,000**	**0**	**0**	**30,000**	**0**	**1,913**
BP Products North America Inc										
Whiting	31,000	16,800	30,000	0	24,800	0	0	30,000	0	1,904
Countrymark Cooperative Inc										
Mount Vernon	2,200	0	3,700	0	3,200	0	0	0	0	9
Kansas	**33,500**	**0**	**4,000**	**5,300**	**27,000**	**0**	**0**	**20,060**	**90**	**712**
CHS McPherson Refinery Inc										
McPherson	9,500	0	0	3,800	12,000	0	0	4,360	34	168
Coffeyville Resources Rfg & Mktg										
Coffeyville	10,000	0	0	0	0	0	0	8,700	0	229
HollyFrontier El Dorado Refining LLC										
El Dorado	14,000	0	4,000	1,500	15,000	0	0	7,000	56	315
Kentucky	**21,000**	**3,200**	**35,400**	**0**	**18,000**	**0**	**0**	**0**	**0**	**448**

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Marathon Petroleum Co LP										
Catlettsburg	21,000	3,200	35,400	0	18,000	0	0	0	0	448
Louisiana	**220,000**	**49,900**	**57,000**	**26,500**	**73,720**	**0**	**66,000**	**166,057**	**118**	**6,773**
Alon Refining Krotz Springs Inc										
Krotz Springs	0	0	0	0	6,220	0	0	0	0	0
Calcasieu Refining Co										
Lake Charles	0	0	0	3,500	0	0	0	0	0	0
Calumet Lubricants Co LP										
Cotton Valley	0	0	0	0	500	0	0	0	2	0
Princeton	0	0	2,000	0	0	0	7,000	0	4	3
Calumet Shreveport LLC										
Shreveport	0	0	6,500	0	0	0	12,500	0	12	40
Chalmette Refining LLC										
Chalmette	16,800	10,500	0	0	0	0	0	9,000	0	920
Citgo Petroleum Corp										
Lake Charles	26,400	20,900	0	0	28,000	0	0	30,000	0	717
Excel Paralubes										
Westlake	0	0	0	0	0	0	30,000	0	0	185
ExxonMobil Refining & Supply Co										
Baton Rouge	41,000	0	0	0	0	0	16,500	31,525	0	800
Marathon Petroleum Co LP										
Garyville	33,000	0	33,000	23,000	26,500	0	0	33,000	0	1,476
Motiva Enterprises LLC										
Convent	16,500	0	0	0	12,500	0	0	0	0	728
Norco	16,800	0	0	0	0	0	0	7,316	0	180
Phillips 66 Company										
Belle Chasse	35,000	15,500	0	0	0	0	0	6,716	0	125
Westlake	6,000	0	2,500	0	0	0	0	22,500	0	440

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Placid Refining Co										
Port Allen	7,500	0	0	0	0	0	0	0	0	55
Shell Oil Products US										
Saint Rose	0	0	13,000	0	0	0	0	0	0	0
Valero Energy Corporation										
Meraux	0	0	0	0	0	0	0	0	0	224
Valero Refining New Orleans LLC										
Norco	21,000	3,000	0	0	0	0	0	26,000	100	880
Michigan	**7,000**	**0**	**23,000**	**0**	**0**	**0**	**0**	**10,500**	**0**	**459**
Marathon Petroleum Co LP										
Detroit	7,000	0	23,000	0	0	0	0	10,500	0	459
Minnesota	**18,000**	**0**	**58,000**	**1,000**	**27,500**	**0**	**0**	**22,900**	**186**	**1,264**
Flint Hills Resources LP										
Saint Paul	12,500	0	45,000	0	18,000	0	0	22,900	176	1,142
St Paul Park Refining Co LLC										
Saint Paul	5,500	0	13,000	1,000	9,500	0	0	0	10	122
Mississippi	**18,600**	**21,000**	**36,125**	**0**	**0**	**0**	**48,000**	**35,500**	**243**	**1,355**
Chevron USA Inc										
Pascagoula	18,600	21,000	20,000	0	0	0	25,000	35,500	230	1,355
Ergon Refining Inc										
Vicksburg	0	0	10,000	0	0	0	23,000	0	13	0
Hunt Southland Refining Co										
Sandersville	0	0	6,125	0	0	0	0	0	0	0
Montana	**17,350**	**0**	**44,300**	**5,250**	**1,500**	**0**	**0**	**13,575**	**97**	**489**
Calumet Montana Refining LLC										
Great Falls	1,000	0	10,000	0	1,500	0	0	0	7	0

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Cenex Harvest States Coop										
Laurel	4,000	0	19,800	1,250	0	0	0	4,100	33	243
ExxonMobil Refining & Supply Co										
Billings	5,100	0	14,500	0	0	0	0	4,000	23	0
Phillips 66 Company										
Billings	7,250	0	0	4,000	0	0	0	5,475	34	246
Nevada	**0**	**0**	**1,600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Foreland Refining Corp										
Ely	0	0	1,600	0	0	0	0	0	0	0
New Jersey	**29,200**	**0**	**70,000**	**4,000**	**0**	**0**	**12,000**	**7,500**	**26**	**280**
Axeon Specialty Products LLC										
Paulsboro	0	0	49,000	0	0	0	0	0	0	0
Paulsboro Refining Co LLC										
Paulsboro	11,200	0	21,000	0	0	0	12,000	7,500	9	280
Phillips 66 Company										
Linden	18,000	0	0	4,000	0	0	0	0	17	0
New Mexico	**10,900**	**0**	**7,000**	**0**	**0**	**0**	**0**	**0**	**38**	**202**
HollyFrontier Navajo Refining LLC										
Artesia	9,100	0	7,000	0	0	0	0	0	38	200
Western Refining Southwest Inc										
Gallup	1,800	0	0	0	0	0	0	0	0	2
North Dakota	**4,830**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**19**
Dakota Prairie Refining LLC										
Dickinson	0	0	0	0	0	0	0	0	2	2
Tesoro West Coast										
Mandan	4,830	0	0	0	0	0	0	0	0	17

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd) [a]	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Ohio	**28,950**	**20,000**	**23,800**	**12,500**	**18,700**	**0**	**0**	**14,200**	**0**	**683**
BP-Husky Refining LLC										
Toledo	11,500	0	9,000	0	0	0	0	10,000	0	353
Lima Refining Company										
Lima	0	9,200	0	4,500	18,700	0	0	4,200	0	110
Marathon Petroleum Co LP										
Canton	7,500	0	14,800	0	0	0	0	0	0	104
Toledo Refining Co LLC										
Toledo	9,950	10,800	0	8,000	0	0	0	0	0	116
Oklahoma	**35,141**	**21,000**	**43,414**	**900**	**13,000**	**0**	**10,000**	**9,050**	**72**	**324**
HollyFrontier Tulsa Refining LLC										
Tulsa East	5,500	0	15,200	0	13,000	0	0	0	0	75
Tulsa West	0	0	6,500	900	0	0	10,000	2,750	0	0
Phillips 66 Company										
Ponca City	17,129	0	0	0	0	0	0	6,300	35	0
Valero Refining Co Oklahoma										
Ardmore	7,012	0	14,714	0	0	0	0	0	27	249
Wynnewood Refining Co										
Wynnewood	5,500	21,000	7,000	0	0	0	0	0	10	0
Pennsylvania	**42,500**	**4,920**	**22,065**	**8,000**	**8,500**	**0**	**2,945**	**0**	**0**	**282**
American Refining Group Inc										
Bradford	0	0	65	0	0	0	2,945	0	0	0
Monroe Energy LLC										
Trainer	12,000	0	0	0	0	0	0	0	0	90
Philadelphia Energy Solutions										
Philadelphia	26,000	4,920	0	8,000	0	0	0	0	0	125

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd) [a]	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
United Refining Co										
Warren	4,500	0	22,000	0	8,500	0	0	0	0	67
Tennessee	**12,700**	**29,000**	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**116**
Premcor Refining Group Inc										
Memphis	12,700	29,000	0	0	0	0	0	0	30	116
Texas	**378,350**	**127,564**	**64,600**	**61,400**	**150,240**	**0**	**82,795**	**292,564**	**458**	**16,105**
Alon USA Energy Inc										
Big Spring	5,000	1,000	7,600	0	0	0	0	0	0	150
Citgo Refining & Chemical Inc										
Corpus Christi	24,000	16,200	0	0	0	0	0	17,160	0	368
Deer Park Refining LTD Partnership										
Deer Park	18,500	0	0	0	0	0	0	35,080	0	1,085
Delek Refining LTD										
Tyler	4,700	0	0	0	0	0	0	1,500	0	39
Equistar Chemicals LP										
Channelview	22,000	0	0	0	0	0	0	0	0	0
ExxonMobil Refining & Supply Co										
Baytown	37,000	0	0	0	0	0	28,000	22,750	0	1,828
Beaumont	14,900	0	0	11,200	25,800	0	10,000	15,039	0	590
Flint Hills Resources LP										
Corpus Christi	15,500	0	0	4,900	3,500	0	0	3,925	0	426
Houston Refining LP										
Houston	11,250	19,300	0	0	0	0	3,895	29,850	0	1,123
Marathon Petroleum Co LP										
Galveston Bay	40,000	35,600	0	0	0	0	0	11,900	0	1,452
Texas City	14,500	2,900	0	0	0	0	0	0	0	40
Motiva Enterprises LLC										
Port Arthur	20,000	0	0	0	49,140	0	39,000	47,850	52	2,912

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Pasadena Refining Systems Inc										
Pasadena	12,500	0	0	0	0	0	0	0	0	28
Phillips 66 Company										
Sweeny	21,700	11,600	0	0	10,100	0	0	22,800	0	915
Premcor Refining Group Inc										
Port Arthur	19,500	0	0	0	0	0	0	32,240	0	1,490
South Hampton Resources Inc										
Silsbee	0	1,064	0	0	4,400	0	0	0	0	0
Total Petrochemicals & Refining USA										
Port Arthur	6,700	13,600	0	0	7,800	0	0	19,200	0	806
Valero Energy Corporation										
Sunray	9,800	0	12,000	3,000	0	0	0	0	30	75
Three Rivers	6,500	10,800	0	3,000	0	0	1,900	0	0	134
Valero Refining Co Texas LP										
Corpus Christi	21,300	15,500	38,000	17,000	12,000	0	0	6,270	275	1,288
Houston	11,800	0	0	0	0	0	0	0	0	336
Texas City	14,700	0	0	0	6,500	0	0	19,000	0	680
Western Refining Company LP										
El Paso	12,500	0	7,000	7,300	0	0	0	0	10	0
WRB Refining LP										
Borger	14,000	0	0	15,000	31,000	0	0	8,000	91	340
Utah	**18,900**	**0**	**1,800**	**3,200**	**6,000**	**0**	**0**	**2,500**	**0**	**95**
Big West Oil Co										
North Salt Lake	3,000	0	0	1,900	3,000	0	0	0	0	4
Chevron USA Inc										
Salt Lake City	5,600	0	0	1,300	0	0	0	2,500	0	63
HollyFrontier Woods Cross Refining LLC										
Woods Cross	3,300	0	1,800	0	3,000	0	0	0	0	10

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Tesoro West Coast										
Salt Lake City	7,000	0	0	0	0	0	0	0	0	18
Washington	**36,100**	**0**	**13,500**	**12,300**	**28,500**	**0**	**0**	**23,650**	**137**	**822**
BP West Coast Products LLC										
Ferndale	0	0	0	6,000	24,000	0	0	15,250	137	284
Phillips 66 Company										
Ferndale	10,200	0	0	2,700	0	0	0	0	0	123
Shell Oil Products US										
Anacortes	12,100	0	0	0	0	0	0	8,400	0	350
Tesoro West Coast										
Anacortes	13,800	0	5,500	3,600	0	0	0	0	0	54
US Oil & Refining Co										
Tacoma	0	0	8,000	0	4,500	0	0	0	0	11
West Virginia	**0**	**0**	**700**	**0**	**0**	**0**	**6,100**	**0**	**3**	**1**
Ergon West Virginia Inc										
Newell	0	0	700	0	0	0	6,100	0	3	1
Wisconsin	**1,600**	**6,000**	**7,900**	**0**	**0**	**0**	**0**	**0**	**0**	**34**
Calumet Lubricants Co LP										
Superior	1,600	6,000	7,900	0	0	0	0	0	0	34
Wyoming	**10,000**	**0**	**24,000**	**0**	**0**	**0**	**0**	**11,700**	**58**	**333**
HollyFrontier Cheyenne Refining LLC										
Cheyenne	4,200	0	16,000	0	0	0	0	4,700	6	116
Little America Refining Co										
Evansville	0	0	0	0	0	0	0	0	0	10
Sinclair Wyoming Refining Co										
Sinclair	4,500	0	8,000	0	0	0	0	7,000	52	207

Table 4. Production Capacity of Operable Petroleum Refineries by State as of January 1, 2016

(Barrels per Stream Day, Except Where Noted)

State/Refiner/Location	Alkylates	Aromatics	Asphalt and Road Oil	Isomers			Lubricants	Marketable Petroleum Coke	Hydrogen (MMcfd) [a]	Sulfur (short tons per day)
				Isobutane	Isopentane and Isohexane	Isooctane				
Wyoming Refining Co										
New Castle	1,300	0	0	0	0	0	0	0	0	0
U.S. Total	**1,286,012**	**323,275**	**732,587**	**192,085**	**562,960**	**200**	**273,140**	**889,491**	**2,997**	**41,343**

[a] Includes hydrogen production capacity of hydrogen plants on refinery grounds.

Note: Refer to Table 5 for corporate ownership information. Some names of previously independent companies have been preserved by acquiring companies.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day
Companies with Capacity Over 100,000 bbl/cd	
VALERO ENERGY CORP	2,062,300
Valero Refining Co Texas LP	
Corpus Christi, Texas	293,000
Texas City, Texas	225,000
Houston, Texas	100,000
Premcor Refining Group Inc	
Port Arthur, Texas	335,000
Memphis, Tennessee	190,000
Valero Energy Corporation	
Sunray, Texas	168,000
Meraux, Louisiana	125,000
Three Rivers, Texas	89,000
Valero Refining Co California	
Benicia, California	145,000
Wilmington Refinery, California	85,000
Wilmington Asphalt Plant, California	6,300
Valero Refining New Orleans LLC	
Norco, Louisiana	215,000
Valero Refining Co Oklahoma	
Ardmore, Oklahoma	86,000
EXXON MOBIL CORP	1,857,500
ExxonMobil Refining & Supply Co	
Baytown, Texas	560,500
Baton Rouge, Louisiana	502,500
Beaumont, Texas	344,600
Joliet, Illinois	238,600
Torrance, California	151,300
Billings, Montana	60,000
MARATHON PETROLEUM CORP	1,794,000
Marathon Petroleum Co LP	
Garyville, Louisiana	539,000
Galveston Bay, Texas	459,000
Catlettsburg, Kentucky	273,000
Robinson, Illinois	212,000
Detroit, Michigan	132,000
Canton, Ohio	93,000
Texas City, Texas	86,000
PHILLIPS 66 COMPANY	1,612,200
Phillips 66 Company	
Westlake, Louisiana	260,000
Belle Chasse, Louisiana	247,000
Sweeny, Texas	247,000
Linden, New Jersey	238,000
Ponca City, Oklahoma	200,000
Wilmington, California	139,000
Rodeo, California	120,200
Ferndale, Washington	101,000
Billings, Montana	60,000
MOTIVA ENTERPRISES LLC (50% Royal Dutch/Shell Group, 50% Saudi Aramco)	1,075,700
Motiva Enterprises LLC	
Port Arthur, Texas	603,000
Norco, Louisiana	237,700
Convent, Louisiana	235,000
CHEVRON CORP	951,271
Chevron USA Inc	
Pascagoula, Mississippi	330,000
El Segundo, California	269,000
Richmond, California	245,271
Honolulu, Hawaii	54,000
Salt Lake City, Utah	53,000

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day
TESORO CORP	831,030
Tesoro Refining & Marketing Co	
Carson, California	256,830
Martinez, California	166,000
Wilmington, California	98,340
Tesoro West Coast	
Anacortes, Washington	120,000
Mandan, North Dakota	73,860
Salt Lake City, Utah	57,500
Tesoro Alaska Petroleum Co	
Kenai, Alaska	58,500
PDV AMERICA INC	761,240
Citgo Petroleum Corp	
Lake Charles, Louisiana	427,800
PDV Midwest Refining LLC	
Lemont, Illinois	175,940
Citgo Refining & Chemical Inc	
Corpus Christi, Texas	157,500
PBF ENERGY CO LLC	694,700
Chalmette Refining LLC [a]	
Chalmette, Louisiana	192,500
Delaware City Refining Co LLC	
Delaware City, Delaware	182,200
Paulsboro Refining Co LLC	
Paulsboro, New Jersey	160,000
Toledo Refining Co LLC	
Toledo, Ohio	160,000
BP PLC	651,000
BP Products North America Inc	
Whiting, Indiana	413,500
BP West Coast Products LLC	
Ferndale, Washington	227,000
BP Exploration Alaska Inc	
Prudhoe Bay, Alaska	10,500
KOCH INDUSTRIES INC	585,630
Flint Hills Resources LP	
Corpus Christi, Texas	295,630
Saint Paul, Minnesota	290,000
WRB REFINING LP	482,000
WRB Refining LP	
Wood River, Illinois (50% Phillips 66, 50% Cenovus)	336,000
Borger, Texas (50% Phillips 66, 50% Cenovus)	146,000
HOLLYFRONTIER CORP	467,350
HollyFrontier Tulsa Refining LLC	
Tulsa West, Oklahoma	85,000
Tulsa East, Oklahoma	70,300
HollyFrontier El Dorado Refining LLC	
El Dorado, Kansas	138,000
HollyFrontier Navajo Refining LLC	
Artesia, New Mexico	102,000
HollyFrontier Cheyenne Refining LLC	
Cheyenne, Wyoming	47,000
HollyFrontier Woods Cross Refining LLC	
Woods Cross, Utah	25,050
ROYAL DUTCH/SHELL GROUP	437,975
Shell Oil Products US	
Martinez, California	156,400
Anacortes, Washington	145,000
Saint Rose, Louisiana	45,000
Shell Chemical LP	
Saraland, Alabama	91,575

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day
CARLYLE GROUP	
Philadelphia Energy Solutions	
Philadelphia, Pennsylvania	335,000
DEER PARK REFINING LTD PTNRSHP (50% Royal Dutch/Shell Group, 50% Pemex)	
Deer Park Refining LTD Partnership	
Deer Park, Texas	285,500
ACCESS INDUSTRIES	
Houston Refining LP	
Houston, Texas	263,776
ALON ISRAEL OIL COMPANY LTD	237,500
Paramount Petroleum Corporation	
Paramount, California	84,500
Alon Refining Krotz Springs Inc	
Krotz Springs, Louisiana	80,000
Alon USA Energy Inc	
Big Spring, Texas	73,000
TOTAL SA	
Total Petrochemicals & Refining USA	
Port Arthur, Texas	225,500
DELTA AIR LINES INC	
Monroe Energy LLC	
Trainer, Pennsylvania	190,000
CVR ENERGY	185,000
Coffeyville Resources Rfg & Mktg	
Coffeyville, Kansas	115,000
Wynnewood Refining Co	
Wynnewood, Oklahoma	70,000
CALUMET SPECIALTY PRODUCTS PARTNERS, L.P.	169,920
Calumet Lubricants Co LP	
Superior, Wisconsin	38,000
Cotton Valley, Louisiana	13,020
Princeton, Louisiana	8,300
Calumet Shreveport LLC	
Shreveport, Louisiana	57,000
Calumet Montana Refining LLC	
Great Falls, Montana	33,600
Calumet Lubricants Co	
San Antonio, Texas	20,000
DELEK GROUP LTD	155,000
Lion Oil Co	
El Dorado, Arkansas	83,000
Delek Refining LTD	
Tyler, Texas	72,000
BP-HUSKY REFINING LLC (50% BP, 50% Husky)	
BP-Husky Refining LLC	
Toledo, Ohio	153,000
HUSKY ENERGY INC	
Lima Refining Company	
Lima, Ohio	152,000
WESTERN REFINING INC.	147,500
Western Refining Company LP	
El Paso, Texas	122,000
Western Refining Southwest Inc	
Gallup, New Mexico	25,500
CHS INC	145,600
CHS McPherson Refinery Inc [b]	
McPherson, Kansas	86,000
Cenex Harvest States Coop	
Laurel, Montana	59,600
PETROBRAS AMERICA INC	
Pasadena Refining Systems Inc	
Pasadena, Texas	112,229

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day
SINCLAIR OIL CORP	109,500
Sinclair Wyoming Refining Co	
Sinclair, Wyoming	85,000
Little America Refining Co	
Evansville, Wyoming	24,500
SUNCOR ENERGY INC	103,000
Suncor Energy (USA) Inc	
Commerce City West, Colorado	67,000
Commerce City East, Colorado	36,000
Total	**17,233,921**
Companies with Capacity 30,001 to 100,000 bbl/cd	
PAR PACIFIC HOLDINGS	
Hawaii Independent Energy LLC	
Ewa Beach, Hawaii	93,500
TRANSWORLD OIL USA INC	
Calcasieu Refining Co	
Lake Charles, Louisiana	89,000
NORTHERN TIER ENERGY LLC	
St Paul Park Refining Co LLC	
Saint Paul, Minnesota	88,900
KINDER MORGAN ENERGY PTNRS LP	
Kinder Morgan Crude & Condensate	
Galena Park, Texas	84,000
PLACID OIL CO	
Placid Refining Co	
Port Allen, Louisiana	75,000
ARCTIC SLOPE REGIONAL CORP	74,700
Petro Star Inc	
Valdez, Alaska	55,000
North Pole, Alaska	19,700
LINDSAY GOLDBERG LLC	
Axeon Specialty Products LLC	
Paulsboro, New Jersey	74,000
RED APPLE GROUP INC	
United Refining Co	
Warren, Pennsylvania	65,000
HUNT CONSLD INC	47,000
Hunt Refining Co	
Tuscaloosa, Alabama	36,000
Hunt Southland Refining Co	
Sandersville, Mississippi	11,000
BUCKEYE PARTNERS LP	
Buckeye Texas Processing LLC	
Corpus Christi, Texas	46,250
ERGON INC	45,300
Ergon Refining Inc	
Vicksburg, Mississippi	23,000
Ergon West Virginia Inc	
Newell, West Virginia	22,300
TRAILSTONE LP	
US Oil & Refining Co	
Tacoma, Washington	40,700
FJ MANAGEMENT INC	
Big West Oil Co	
North Salt Lake, Utah	30,500
Total	**853,850**
Companies with Capacity 10,001 to 30,000 bbl/cd	
COUNTRYMARK COOP INC	
Countrymark Cooperative Inc	
Mount Vernon, Indiana	27,100

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day
KERN OIL & REFINING CO	
Kern Oil & Refining Co	
Bakersfield, California	26,000
PETROMAX REFINING CO LLC	
Petromax Refining Co LLC	
Houston, Texas	25,000
DAKOTA PRAIRIE REFINING	
Dakota Prairie Refining LLC	
Dickinson, North Dakota	19,500
BLACK ELK REFINING LLC	
Wyoming Refining Co	
New Castle, Wyoming	18,000
SILVER EAGLE REFINING INC	18,000
Silver Eagle Refining	
Woods Cross, Utah	15,000
Evanston, Wyoming	3,000
CONOCOPHILLIPS	
ConocoPhillips Alaska Inc	
Prudhoe Bay, Alaska	15,000
SAN JOAQUIN REFINING CO INC	
San Joaquin Refining Co Inc	
Bakersfield, California	15,000
BLUE DOLPHIN ENERGY CO	
Lazarus Energy LLC	
Nixon, Texas	13,765
AMERICAN REFINING GROUP INC	
American Refining Group Inc	
Bradford, Pennsylvania	11,000
Total	**188,365**
Companies with Capacity 10,000 bbl/cd or Less	
GREKA ENERGY	
Santa Maria Refining Company	
Santa Maria, California	9,500
WORLD OIL CO	
Lunday Thagard Co	
South Gate, California	8,500
MARTIN RESOURCE MGMT CORP	
Cross Oil Refining & Marketing Inc	
Smackover, Arkansas	7,500
CONTINENTAL REFINING CO LLC	
Continental Refining Company LLC	
Somerset, Kentucky	5,500
GOODWAY REFINING LLC	
Goodway Refining LLC	
Atmore, Alabama	4,100
GENESIS ENERGY LP	
Antelope Refining LLC	
Douglas, Wyoming	3,800
FORELAND REFINING CORP	
Foreland Refining Corp	
Ely, Nevada	2,000
Total	**40,900**
U.S. Total	**18,317,036**

Table 5. Refiners' Total Operable Atmospheric Crude Oil Distillation Capacity as of January 1, 2016

CORPORATION / Refiner / Location	Barrels per Calendar Day	CORPORATION / Refiner / Location	Barrels per Calendar Day

a Formerly 50% ExxonMobil, 50% PDV.

b Formerly owned by NCRA.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 6. Operable Crude Oil and Downstream Charge Capacity of Petroleum Refineries, January 1, 1987 to January 1, 2016

(Thousand Barrels per Stream Day, Except Where Noted)

Year/PAD District	Atmospheric Crude Oil Distillation	Downstream Charge Capacity							
		Vacuum Distillation	Thermal Cracking	Catalytic Cracking		Catalytic Hydro-Cracking	Catalytic Reforming	Hydrotreating/ Desulfurization	Fuels Solvent Deasphalting
				Fresh	Recycled				
JAN 1, 1987	16,460	6,935	1,928	5,251	466	1,189	3,805	9,083	230
JAN 1, 1988	16,825	7,198	2,080	5,424	381	1,202	3,891	9,170	240
JAN 1, 1989	16,568	7,225	2,073	5,324	326	1,238	3,911	9,440	245
JAN 1, 1990	16,507	7,245	2,108	5,441	314	1,282	3,896	9,537	279
JAN 1, 1991	16,557	7,276	2,158	5,559	304	1,308	3,926	9,676	271
JAN 1, 1992	16,633	7,127	2,100	5,608	280	1,363	3,907	9,644	276
JAN 1, 1993	15,935	6,892	2,082	5,540	244	1,397	3,728	9,677	269
JAN 1, 1994	15,904	6,892	2,107	5,586	191	1,376	3,875	10,616	261
JAN 1, 1995	16,326	7,248	2,123	5,583	169	1,386	3,867	10,916	251
JAN 1, 1997	16,287	7,349	2,050	5,595	155	1,388	3,727	11,041	275
JAN 1, 1999	17,155	7,538	2,046	5,920	153	1,552	3,779	11,461	319
JAN 1, 2000	17,393	7,617	2,163	5,949	99	1,576	3,770	11,440	351
JAN 1, 2001	17,511	7,798	2,277	5,983	86	1,615	3,797	11,673	350
JAN 1, 2002	17,676	7,779	2,329	5,989	80	1,633	3,753	11,845	362
JAN 1, 2003	17,675	7,788	2,377	6,052	79	1,644	3,777	11,987	350
JAN 1, 2004	17,815	7,964	2,435	6,098	87	1,602	3,812	13,501	366
JAN 1, 2005	18,031	8,120	2,491	6,151	87	1,624	3,836	14,087	384
JAN 1, 2006	18,308	8,398	2,540	6,188	87	1,637	3,859	14,808	386
JAN 1, 2007	18,425	8,251	2,564	6,219	82	1,791	3,908	15,447	379
JAN 1, 2008	18,558	8,421	2,606	6,266	79	1,770	3,892	15,807	378
JAN 1, 2009	18,681	8,542	2,639	6,292	79	1,743	3,829	16,131	381
JAN 1, 2010	18,581	8,543	2,632	6,140	92	1,820	3,700	16,023	383
JAN 1, 2011	18,953	8,650	2,672	6,220	96	1,856	3,721	16,683	383
JAN 1, 2012	18,560	8,680	2,763	6,033	85	1,880	3,642	16,565	375
JAN 1, 2013	18,972	8,938	2,877	6,089	84	2,081	3,758	16,860	368
JAN 1, 2014	19,064	8,987	2,959	6,032	76	2,208	3,759	17,095	370
JAN 1, 2015	19,134	8,979	2,975	6,012	76	2,305	3,741	17,324	370
JAN 1, 2016	**19,508**	**9,073**	**2,983**	**6,052**	**76**	**2,318**	**3,743**	**17,483**	**371**
PADD I	1,353	586	82	499	5	45	264	1,030	22
PADD II	4,221	1,775	577	1,339	16	322	893	3,867	18
PADD III	10,118	4,830	1,636	3,118	34	1,309	1,864	9,319	244
PADD IV	720	256	90	210	5	55	134	592	6
PADD V	3,096	1,626	599	887	16	586	588	2,675	80
JAN 1, 2017 [a]	**19,668**	**9,074**	**2,985**	**6,061**	**76**	**2,373**	**3,745**	**17,624**	**371**
PADD I	1,353	586	82	499	5	45	264	1,046	22
PADD II	4,256	1,775	579	1,339	16	348	893	3,893	18
PADD III	10,228	4,830	1,636	3,118	34	1,332	1,866	9,417	244
PADD IV	735	256	90	218	5	61	134	593	6
PADD V	3,096	1,626	599	887	16	586	588	2,675	80
2016-2017 [a]	**160**	**1**	**2**	**9**	**0**	**55**	**2**	**141**	**0**
PADD I	0	0	0	0	0	0	0	16	0
PADD II	35	0	2	0	0	26	0	26	0
PADD III	110	0	0	0	0	23	2	98	0
PADD IV	15	0	0	8	0	6	0	1	0
PADD V	0	0	0	0	0	0	0	0	0

[a] Projected data from refiners.

Notes:

NA = Not available.

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

The EIA-820 refinery capacity survey was not conducted for January 1, 1996 or January 1, 1998.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 7. Operable Production Capacity of Petroleum Refineries, January 1, 1987 to January 1, 2016

(Thousand Barrels per Stream Day, Except Where Noted)

Year/PAD District	Production Capacity							
	Alkylates	Aromatics	Asphalt and Road Oil	Isomers	Lubricants	Marketable Petroleum Coke	Hydrogen [a] (MMcfd)	Sulfur (short tons/day)
JAN 1, 1987	974	287	788	326	250	364	2,569	23,806
JAN 1, 1988	993	289	788	465	232	368	2,418	27,639
JAN 1, 1989	1,015	290	823	469	230	333	2,501	28,369
JAN 1, 1990	1,030	290	844	456	232	341	2,607	24,202
JAN 1, 1991	1,077	292	866	490	229	367	2,527	23,875
JAN 1, 1992	1,095	290	812	494	217	356	2,644	23,811
JAN 1, 1993	1,083	286	814	499	217	393	2,674	25,940
JAN 1, 1994	1,086	278	793	499	213	410	2,940	24,554
JAN 1, 1995	1,105	285	846	502	217	427	3,139	24,885
JAN 1, 1997	1,120	288	872	577	244	458	3,052	26,466
JAN 1, 1999	1,172	302	846	667	233	441	3,104	26,423
JAN 1, 2000	1,185	315	886	643	218	464	3,143	26,645
JAN 1, 2001	1,191	318	900	654	214	538	3,230	27,446
JAN 1, 2002	1,181	313	917	658	218	548	3,244	29,107
JAN 1, 2003	1,191	316	873	679	216	646	3,265	29,766
JAN 1, 2004	1,205	322	887	688	210	672	3,258	30,606
JAN 1, 2005	1,229	318	881	703	217	696	2,965	31,004
JAN 1, 2006	1,238	319	893	708	220	709	2,823	32,421
JAN 1, 2007	1,227	306	877	739	234	722	3,100	33,021
JAN 1, 2008	1,261	285	858	727	249	735	3,109	33,487
JAN 1, 2009	1,261	299	847	736	230	762	2,914	33,500
JAN 1, 2010	1,249	271	844	715	240	760	2,985	34,058
JAN 1, 2011	1,262	297	828	703	243	778	3,082	35,483
JAN 1, 2012	1,247	297	796	688	242	823	3,215	36,663
JAN 1, 2013	1,269	318	741	737	241	867	3,047	39,478
JAN 1, 2014	1,266	297	744	739	240	883	3,094	41,375
JAN 1, 2015	1,267	316	710	757	265	887	3,102	41,266
JAN 1, 2016	**1,286**	**323**	**733**	**755**	**273**	**889**	**2,997**	**41,343**
PADD I	83	10	93	27	21	21	69	1,159
PADD II	281	113	267	168	10	173	582	8,352
PADD III	633	198	201	325	202	501	910	24,820
PADD IV	46	0	82	17	0	28	177	1,033
PADD V	243	2	89	219	40	167	1,259	5,979
JAN 1, 2017 [b]	**1,290**	**323**	**733**	**755**	**273**	**890**	**3,038**	**41,634**
PADD I	83	10	93	27	21	21	69	1,159
PADD II	281	113	267	168	10	173	604	8,352
PADD III	634	198	201	325	202	501	912	25,111
PADD IV	48	0	82	17	0	28	194	1,033
PADD V	243	2	89	219	40	167	1,259	5,979
2016-2017 [b]	**4**	**0**	**0**	**0**	**0**	**1**	**41**	**291**
PADD I	0	0	0	0	0	0	0	0
PADD II	0	0	0	0	0	0	22	0
PADD III	1	0	0	0	0	0	2	291
PADD IV	2	0	0	0	0	0	17	0
PADD V	0	0	0	0	0	0	0	0

[a] Includes hydrogen production capacity of hydrogen plants on refinery grounds.

[b] Projected data from refiners.

Notes:

NA = Not available. MMcfd = Million cubic feet per day.

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

The EIA-820 refinery capacity survey was not conducted for January 1, 1996 or January 1, 1998.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 8. Capacity and Fresh Feed Input to Selected Downstream Units at U.S. Refineries, 2014 - 2016
(Barrels per Calendar Day)

Year/PAD	Cokers		Catalytic Crackers		Hydrocrackers		Reformers	
District	Capacity	Inputs	Capacity	Inputs	Capacity	Inputs	Capacity	Inputs
2014	**2,686,917**	**2,337,425**	**5,616,015**	**4,884,975**	**2,034,689**	**1,662,603**	**3,419,407**	**2,591,992**
PADD I	74,900	47,633	475,800	407,342	41,500	29,849	240,550	175,036
PADD II	520,521	444,060	1,213,427	1,023,877	310,950	267,016	837,754	645,874
PADD III	1,479,496	1,312,296	2,916,764	2,598,230	1,118,239	879,381	1,699,083	1,290,449
PADD IV	82,500	62,833	189,324	167,647	28,500	21,241	118,360	98,452
PADD V	529,500	470,603	820,700	687,879	535,500	465,115	523,660	382,181
2015	**2,686,299**	**2,366,852**	**5,583,169**	**4,834,386**	**2,123,431**	**1,700,249**	**3,392,641**	**2,731,167**
PADD I	74,900	51,699	473,800	406,197	41,500	34,847	237,550	181,392
PADD II	519,740	439,066	1,217,590	1,054,008	312,850	253,332	814,550	654,940
PADD III	1,489,899	1,361,005	2,882,183	2,584,515	1,202,201	956,816	1,702,952	1,394,682
PADD IV	82,500	68,090	188,576	166,455	28,500	18,792	117,160	100,225
PADD V	519,260	446,992	821,020	623,211	538,380	436,463	520,429	399,929
2016	**2,650,839**	**NA**	**5,596,552**	**NA**	**2,121,715**	**NA**	**3,385,049**	**NA**
PADD I	74,900	NA	475,800	NA	41,500	NA	241,050	NA
PADD II	521,543	NA	1,235,625	NA	292,600	NA	812,460	NA
PADD III	1,458,026	NA	2,867,837	NA	1,193,745	NA	1,700,570	NA
PADD IV	82,500	NA	195,480	NA	51,700	NA	118,830	NA
PADD V	513,870	NA	821,810	NA	542,170	NA	512,139	NA

NA = Not Available.

Note: Capacities are as of January 1 of the indicated year.

Sources: Capacities are from the Energy Information Admistration (EIA) Form EIA-820, "Annual Refinery Report."

Inputs are from the form EIA-810, "Monthly Refinery Report." Year 2014 data is final, 2015 data is preliminary.

Table 9. Refinery Receipts of Crude Oil by Method of Transportation by PAD District, 2015[a]

(Thousand Barrels)

Method	PAD Districts					United States
	I	II	III	IV	V	
Pipeline	**25,319**	**1,270,581**	**1,894,658**	**178,448**	**290,577**	**3,659,583**
Domestic	2,766	679,552	1,624,647	86,978	222,419	2,616,362
Foreign	22,553	591,029	270,011	91,470	68,158	1,043,221
Tanker	**305,663**	**0**	**941,152**	**0**	**513,584**	**1,760,399**
Domestic	119,833	0	28,324	0	180,353	328,510
Foreign	185,830	0	912,828	0	333,231	1,431,889
Barge	**22,367**	**4,569**	**227,383**	**0**	**28,604**	**282,923**
Domestic	15,192	4,569	171,808	0	3,649	195,218
Foreign	7,175	0	55,575	0	24,955	87,705
Tank Cars (Rail)	**53,713**	**1,465**	**13,440**	**17**	**56,605**	**125,240**
Domestic	48,658	1,429	6,313	17	54,373	110,790
Foreign	5,055	36	7,127	0	2,232	14,450
Trucks	**2,924**	**24,145**	**100,003**	**41,420**	**8,161**	**176,653**
Domestic	2,924	24,145	100,003	41,420	8,161	176,653
Foreign	0	0	0	0	0	0
Total	**409,986**	**1,300,760**	**3,176,636**	**219,885**	**897,531**	**6,004,798**
Domestic	189,373	709,695	1,931,095	128,415	468,955	3,427,533
Foreign	220,613	591,065	1,245,541	91,470	428,576	2,577,265

a Receipts are reported by the last method of transportation used if the distance traveled is greater than 100 miles. If several methods are used and none are greater than 100 miles, the method which represents the greatest distance traveled is reported. For example, if crude oil traveled by rail for 1,500 miles and then by barge for 120 miles, then the reported mode of transportation would be barge rather than rail.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report."

Table 10a. Fuel Consumed at Refineries by PAD District, 2015

(Thousand Barrels, Except Where Noted)

Commodity	PAD Districts					United States
	I	II	III	IV	V	
Crude Oil	0	0	0	0	0	0
Liquefied Petroleum Gases	0	1,834	309	20	846	3,009
Distillate Fuel Oil	0	26	220	8	110	364
Residual Fuel Oil	20	18	22	2	333	395
Still Gas	15,955	50,290	112,346	8,842	44,613	232,046
Marketable Petroleum Coke	0	0	0	520	90	610
Catalyst Petroleum Coke	8,229	17,001	43,013	2,876	10,891	82,010
Natural Gas (million cubic feet)	48,181	151,555	445,865	28,953	177,513	852,067
Coal (thousand short tons)	17	0	0	0	0	17
Purchased Electricity (million kWh)	2,664	12,821	25,048	2,142	4,185	46,860
Purchased Steam (million pounds)	4,611	10,684	98,350	1,755	12,939	128,339
Other Products [a]	61	78	333	13	466	951

Note: Includes volumes used as fuel at refineries and all nonprocessing losses of crude oil and petroleum products (e.g., spills, fire losses, contamination, etc.)

[a] Includes pentanes plus, other hydrocarbons, oxygenates, hydrogen, unfinished oils, gasoline, special naphthas, jet fuel, lubricants, asphalt and road oil, and miscellaneous products.

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report," and Form EIA-810, "Monthly Refinery Report."

Table 10b. Natural Gas Used as Feedstock for Hydrogen Production by PAD District, 2015

(Million Cubic Feet)

Commodity	PAD Districts					United States
	I	II	III	IV	V	
Natural Gas Used As Feedstock For Hydrogen Production	5,865	48,390	56,223	12,330	58,145	180,953

Source: Energy Information Administration (EIA), Form EIA-820, "Annual Refinery Report".

Table 11. New, Shutdown and Reactivated Refineries During 2015

PAD District / Refinery	Location	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd) [a]	Total Downstream Charge Capacity (bbl/sd) [b]	Date Operable	Date of Last Operation	Date Shutdown
		NEW				
PAD District III		**71,250**				
Buckeye Texas Processing LLC	Corpus Christi, TX	46,250		11/15		
Petromax Refining Co LLC	Houston, TX	25,000		07/15		
		SHUTDOWN				
PAD District III		**0**	**12,000**			
Pelican Refining Company LLC	Lake Charles, LA	0	12,000		12/14	01/15

[a] bbl/cd=Barrels per calendar day.

[b] bbl/sd=Barrels per stream day.

Sources: Energy Information Administration (EIA) Form EIA-810, "Monthly Refinery Report" and Form EIA-820, "Annual Refinery Report."

Table 12. Refinery Sales During 2015

Former Corporation/Refiner	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd)	New Corporation/Refiner	Date of Sale
CHS Inc./NCRA		**CHS Inc./CHS McPherson Refinery Inc.**	**9/15**
McPherson, KS	86,000		
Chalmette Refining LLC		**PBF Energy Co LLC/Chalmette Refining LLC**	**11/15**
Chalmette, LA	192,500		

bbl/cd= Barrels per calendar day

Sources: Energy Information Administration (EIA) Form EIA-810, "Monthly Refinery Report" and Form EIA-820, "Annual Refinery Report."

Table 13. Refineries Permanently Shutdown By PAD District Between January 1, 1990 and January 1, 2016

PAD District / Refinery	Location	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd)	Total Downstream Charge Capacity (bbl/sd)	Date of Last Operation	Date Shutdown
PAD District I		**570,450**			
Primary Energy Corp	Richmond, VA	6,100	0	a	
GNC Energy Corp	Greensboro, NC	3,000	0	a	
Saint Mary's Refining Co	Saint Mary's, WV	4,000	4,480	02/93	03/93
Cibro Refining	Albany, NY	41,850	27,000	07/93	09/93
Calumet Lubricants Co LP	Rouseville, PA	12,800	26,820	03/00	06/00
Young Refining Corp.	Douglasville, GA	5,400	0	07/04	07/04
Sunoco Inc	Westville, NJ	145,000	263,000	11/09	02/10
Western Refining Yorktown Inc	Yorktown, VA	66,300	182,600	09/11	12/11
Sunoco Inc	Marcus Hook, PA	178,000	278,000	12/11	12/11
Chevron USA Inc	Perth Amboy, NJ	80,000	47,000	03/08	07/12
Hess Corporation	Port Reading, NJ	0	115,000	02/13	03/13
Axeon Specialty Products LLC	Savannah, GA	28,000	0	09/12	12/14
PAD District II		**472,315**			
Coastal Refining & Mktg	El Dorado, KS	0	20,000	b	
Intercoastal Energy Svcs Corp	Troy, IN	1,250	2,250	11/90	03/91
Farmland Industries	Philipsburg, KS	26,400	22,800	12/91	07/92
Coastal Refining & Mktg	Wichita, KS	28,800	41,300	05/93	06/93
Coastal Refining & Mktg	Augusta, KS	0	21,000	06/93	06/93
Crystal Refining	Carson City, MI	3,000	0	10/92	09/93
Marathon	Indianapolis, IN	50,000	68,000	09/93	10/93
Indian Refining	Lawrenceville, IL	80,750	103,000	09/95	10/95
Cyril Petrochemical Corp	Cyril, OK	7,500	0	09/95	12/95
Laketon Refining	Laketon, IN	11,100	0	06/95	01/96
Total Petroleum, Inc.	Arkansas City, KS	56,000	74,840	08/96	09/96
TPI Petro Inc.	Alma, MI	51,000	63,300	11/99	12/99
Premcor Refining Group	Blue Island, IL	80,515	124,500	01/01	04/01
Premcor Refining Group	Hartford, IL	64,000	116,700	09/02	10/02
Ventura Refining & Transmission LLC	Thomas, OK	12,000	0	10/10	11/14

Table 13. Refineries Permanently Shutdown By PAD District Between January 1, 1990 and January 1, 2016

PAD District / Refinery	Location	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd)	Total Downstream Charge Capacity (bbl/sd)	Date of Last Operation	Date Shutdown
PAD District III		**299,480**			
Imron Refining, Inc.	San Leon, TX	7,000	0	c	08/90
Eagle Refining	Jackson, TX	1,800	1,800	01/90	10/90
Vulcan Refining	Cordova, AL	9,500	5,000	09/90	12/90
Sabine Resources	Stonewall, LA	12,000	0	c	02/92
Rattlesnake Refining	Wickett, TX	8,000	10,400	02/92	03/92
Longview Refining Assoc	Longview, TX	13,300	13,800	08/92	09/92
Thriftway Co	Bloomfield, NM	4,000	3,250	01/92	10/92
El Paso Refining	El Paso, TX	50,000	76,000	10/92	12/92
Dubach Gas	Dubach, LA	8,500	3,000	12/93	12/93
Amerada Hess	Purvis, MS	30,000	50,500	01/94	02/94
Barrett Refg Corp	Vicksburg, MS	8,000	0	06/95	01/96
Arcadia Refining & Mktg	Lisbon, LA	7,350	6,700	01/96	02/96
Canal Refg Co.	Chuch Point, LA	9,500	2,100	07/95	09/97
Gold Line Refining LTD	Jennings, LA	12,000	0	07/97	01/98
Petrolite Corp	Kilgore, TX	600	750	12/97	02/98
Pride Refining Inc.	Abilene, TX	42,750	40,500	05/98	04/98
Shell Oil Co	Odessa, TX	28,300	33,500	10/98	11/98
Berry Petroleum Co.	Stephens, AR	6,700	3,700	07/99	02/00
Dow Haltermann Products	Channelview, TX	880	0	09/04	12/05
Hunt Southland Refining Co	Lumberton, MS	5,800	0	03/05	12/06
Gulf Atlantic Operations LLC	Mobile, AL	16,700	15,400	03/06	09/07
Western Refining Southwest Inc	Bloomfield, NM	16,800	19,500	12/09	11/12
Trigeant LTD	Corpus Christi, TX	0	29,000	12/13	12/14
Pelican Refining Company LLC	Lake Charles, LA	0	12,000	12/14	01/15
PAD District IV		**58,000**			
Amoco Oil Co.	Casper, WY	40,000	44,900	12/91	12/91
Landmark Refining	Fruita, CO	10,000	25,900	01/92	11/93
Pennzoil Producing Co.	Roosevelt, UT	8,000	12,900	09/94	10/94

Table 13. Refineries Permanently Shutdown By PAD District Between January 1, 1990 and January 1, 2016

PAD District / Refinery	Location	Total Atmospheric Crude Oil Distillation Capacity (bbl/cd)	Total Downstream Charge Capacity (bbl/sd)	Date of Last Operation	Date Shutdown
PAD District V		**410,360**			
Gibson Oil & Refining	Bakersfield, CA	9,600	0	07/87	12/90
Chevron USA Inc	Kenai, AK	22,000	0	06/91	07/91
Anchor Refining Co.	McKittrick, CA	10,000	6,000	06/91	08/91
Golden West	Santa Fe Springs, CA	47,000	94,300	02/92	03/92
Eco Asphalt Inc.	Long Beach, CA	10,550	7,000	c	10/92
Fletcher Oil & Refining	Carson, CA	29,675	48,100	09/92	10/92
Sunbelt Refining	Coolidge, AZ	10,000	7,000	08/93	09/93
Chemoil Refining Corp	Long Beach, CA	18,000	0	02/94	04/94
Powerine Oil Co.	Santa Fe Springs, CA	46,500	100,300	06/95	09/95
Sunland Refining Corp.	Bakersfield, CA	12,000	2,650	03/95	12/95
Intermountain Refining Co.	Fredonia, AZ	3,800	2,000	01/94	05/96
Pacific Refining Co.	Hercules, CA	50,000	62,400	07/95	09/97
Sound Refining Inc	Tacoma, WA	11,900	6,000	10/98	12/98
Chevron USA Inc.	Richmond Beach, WA	0	6,200	05/00	06/00
Foreland Refining Corp.	Tonopah, NV	0	3,000	02/01	01/02
Tricor Refining LLC	Bakersfield, CA	0	14,400	07/01	01/02
Paramount Petroleum Corporation	Portland, OR	0	10,000	11/06	12/08
Tenby Inc	Oxnard, CA	2,800	0	12/11	12/11
Flint Hills Resources LP	North Pole, AK	126,535	5,500	a	06/14
U.S. Total		**1,810,605**			
PAD District VI		**704,300**			
Arochem International	Ponce, PR	75,600	37,000	12/91	12/92
Peerless Oil & Chemical	Ponce, PR	8,800	45,200	09/94	12/94
Chevron Phillips Chem	Guayama, PR	0	93,200	03/01	01/02
Caribbean Petroleum Corp	San Juan, PR	42,000	60,500	12/00	01/05
Shell Chem Yabucoa Inc	Yabucoa, PR	77,900	91,300	10/08	12/09
Hovensa LLC	Kingshill, VI	500,000	1,086,000	02/12	02/12

a. Facility in operation as other than a refinery since it no longer processes crude oil or unfinished oils.

b. Facility maintained asphalt production capacity until September, 2004.

c. Never Operated

bbl/cd=Barrels per calendar day

bbl/sd=Barrels per stream day.

Sources: Energy Information Administration (EIA) Form EIA-810, "Monthly Refinery Report" and Form EIA-820, "Annual Refinery Report."

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APPENDIX A: DISTRICT DESCRIPTIONS AND MAPS

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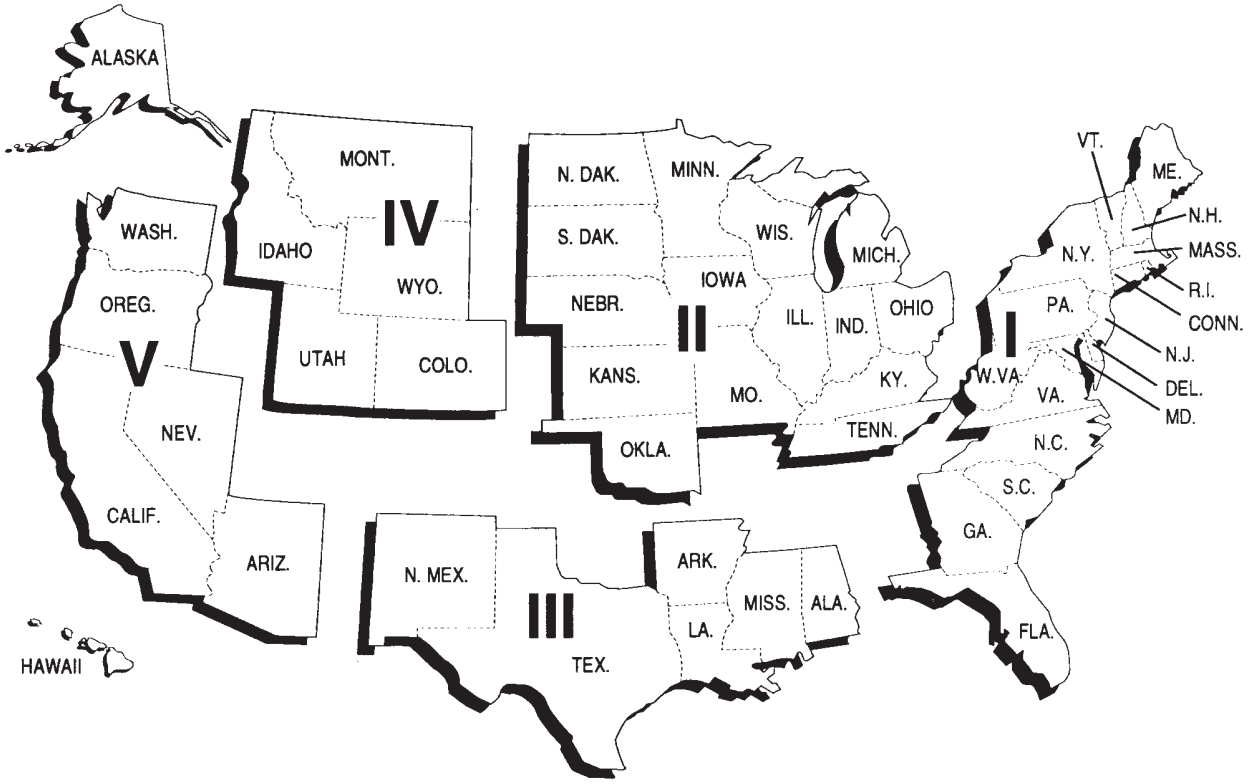
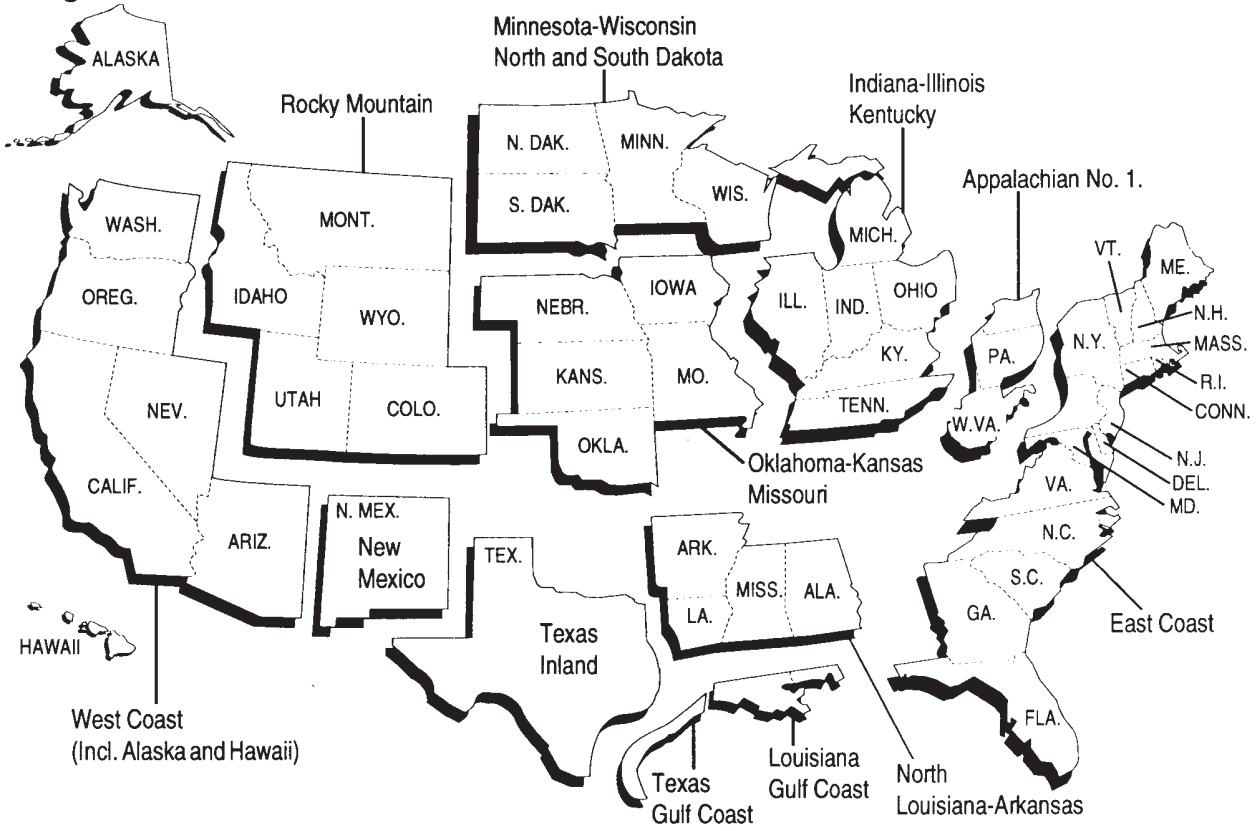
Petroleum Administration for Defense (PAD) Districts



Refining Districts



Appendix A

District Descriptions and Maps

The following are the Refining Districts which make up the Petroleum Administration for Defense (PAD) Districts.

PAD District I

East Coast: District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung, and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

Appalachian No. 1: The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

Sub-PAD District I

New England: The States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Central Atlantic: The District of Columbia and the States of Delaware, Maryland, New Jersey, New York, and Pennsylvania.

Lower Atlantic: The States of Florida, Georgia, North Carolina, South Carolina, Virginia and West Virginia.

PAD District II

Indiana-Illinois-Kentucky: The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and Ohio.

Minnesota-Wisconsin-North and South Dakota: The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

Oklahoma-Kansas-Missouri: The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

PAD District III

Texas Inland: The State of Texas except the Texas Gulf Coast District.

Texas Gulf Coast: The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

Louisiana Gulf Coast: The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

North Louisiana-Arkansas: The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.
New Mexico: The State of New Mexico.

PAD District IV

Rocky Mountain: The States of Montana, Idaho, Wyoming, Utah, and Colorado.

PAD District V

West Coast: The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

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APPENDIX B:
EXPLANATORY NOTES

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Appendix B

Survey Methodology

Description of Survey Form

The Form EIA-820, "Annual Refinery Report," is the primary source of data in the "Refinery Capacity Report" tables. The form collects data on the consumption of purchased steam, electricity, coal, and natural gas; refinery receipts of crude oil by method of transportation; operable capacity for atmospheric crude oil distillation units and downstream units; and production capacity for crude oil and petroleum products.

Frame

The respondent frame consists of all operating and idle petroleum refineries, located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam and other U.S. possessions. As of January 1, 2016 there were 141 refineries.

The respondent frame is maintained by monitoring the monthly Form EIA-810, "Monthly Refinery Report," and industry publications for changes and developments in the petroleum industry such as refinery sales, mergers and new operations.

Collection

The Form EIA-820 is sent to respondents in January. Survey forms can be submitted by electronic mail or facsimile. Completed forms are required to be submitted by the 15th day of February of the current report year. Receipt of the reports is monitored using an automated respondent mailing list. Telephone follow-up calls are made to secure responses from those companies failing to report by February 15th.

Processing and Micro Editing

Upon receipt, all reported data are transformed into a standard format and sent through a log-in and prescreening process to validate respondent control information and resolve any discrepancies. The data are then processed using generalized edit and imputation procedures. Automated editing procedures check current data for consistency with past data and for internal consistency (e.g., totals equal to the sums of the parts).

After the edit failures are resolved and imputation performed for nonrespondents, preliminary tables are produced and used to identify anomalies. Anomalies result in further review of respondent data which in turn may result in additional flagged data and imputation.

Imputation and Estimation

Imputation is performed for companies that fail to file prior to the publication deadline. When nonresponse occurs, values for these companies are imputed from data reported on the most recent year's Form EIA-820 and/or from data reported on Form EIA-810, "Monthly Refinery Report," for that company. For most surveyed items, the value imputed for nonrespondents is the value that the company reported on the Form EIA-820 for the most recent year. For three categories of information however, the imputed value is also based on their data from the Form EIA-810 as follows:

Part 4: Refinery Receipts of Crude Oil by Method of Transportation

The imputation methodology for this section is based on data reported on both the monthly Form EIA-810 and the annual Form EIA-820. Annual refinery receipts of domestic and foreign crude oil for a nonrespondent are imputed by aggregating the values for the refinery on the monthly survey. These values are allocated to the method of transportation by using the percentages reported for the refinery in the previous year.

Part 5: Atmospheric Crude Oil Distillation Capacity

Operable atmospheric crude oil distillation capacity in barrels per calendar day is collected on the monthly Form EIA-810 as of the first day of each month and on the annual Form EIA-820 as of January 1. As part of the editing process for the Form EIA-820, these two values are compared. Companies are contacted and any discrepancies are resolved by the time of publication. Imputed values for operable atmospheric crude oil distillation capacity in barrels per calendar day are taken directly from the January Form EIA-810. A barrel per stream day capacity is then derived by dividing the reported barrels per calendar day capacity by .95.

Parts 6 and 7: Downstream Charge Capacity and Production Capacity

Current year and projected year data for downstream charge capacity and production capacity are taken directly from the previous year's annual report.

Macro Editing

A comparison of the data collected on the EIA-820 with other similar data series and industry trade journals is performed each year.

Dissemination

Prior to 2006, the data collected on Form EIA-820, "Annual Refinery Report," was published in the *Petroleum Supply Annual, Volume 1*. Beginning with data for 2006, the Form EIA-820 data are published as a standalone product in the EIA publication "Refinery Capacity Report." This report contains statistics on consumption of purchased steam, electricity, coal, and natural gas; refinery receipts of crude oil by method of transportation; current and projected capacities for atmospheric crude oil distillation, downstream charge and production capacities. The data are also published in the *Annual Energy Review*. The "Refinery Capacity Report" can be found at:
http://www.eia.gov/petroleum/refinerycapacity/

Additional Sources of Data

The Form EIA-820, "Annual Refinery Report," is the primary source of data in the "Refinery Capacity Report" tables. In addition, some data collected on the Form EIA-810, "Monthly Refinery Report," are included.

Quality

Response Rates

The response rate for the Form EIA-820 is normally 100 percent.

Non-sampling Errors

There are two types of errors usually associated with data produced from a survey -sampling errors and nonsampling errors. Because estimates from the Form EIA-820 survey are based on a complete census of the frame of petroleum refineries, there is no sampling error in the data presented in this report. The data, however, are subject to nonsampling errors. Nonsampling errors are those which can arise from: (1) the inability to obtain data from all companies in the frame or sample (nonresponse) and the method used to account for nonresponses; (2) definitional difficulties and/or improperly worded questions which lead to different interpretations; (3) mistakes in recording or coding the data obtained from respondents; and (4) other errors of collection, response, coverage, and estimation. Quality control procedures are employed in the collection and editing operations to minimize misrepresentation and misreporting. Nonresponse follow-up procedures are employed to reduce the number of nonrespondents, and procedures employed to impute missing data, introduce a minimal amount of error, given the relatively small volume of imputed data.

Resubmissions

EIA-820 resubmissions are required whenever an error greater than 5 percent of the true value is discovered. In the event of a reporting error, company reports are updated after contact with the company and are followed up by corrected report resubmissions.

Revision Policy

The "Refinery Capacity Report" reflects EIA's final data on refinery capacity and will be revised only if, in EIA's judgment, a revision is expected to substantively affect understanding of the U.S. refinery capacity.

Confidentiality

Information on operable atmospheric crude oil distillation capacity, downstream charge capacity, and production capacity reported on Parts 5, 6, and 7 of Form EIA-820 are not considered confidential and are published in the "Refinery Capacity Report." All other information reported on Form EIA-820 (i.e. Parts 3 and 4 and respondent information) will be protected and not disclosed to the public to the extent that it satisfies the criteria for exemption under the Freedom of Information Act (FOIA), 5 U.S.C. §552, the DOE regulations, 1 0 C.F.R. §1004.11, implementing the FOIA, and the Trade Secrets Act, 18 U.S.C. §1905.

The Federal Energy Administration Act requires the EIA to provide company-specific data to other Federal agencies when requested for official use. The information reported on this form may also be made available, upon request, to another component of the Department of Energy (DOE); to any Committee of Congress, the General Accountability Office, or other Federal agencies authorized by law to receive such information. A court of competent jurisdiction may obtain this information in response to an order. The information may be used for any nonstatistical purposes such as administrative, regulatory, law enforcement, or adjudicatory purposes.

Company specific data are also provided to other DOE offices for the purpose of examining specific petroleum operations in the context of emergency response planning and actual emergencies.

Disclosure limitation procedures are not applied to the statistical data published from this survey's information. Thus, there may be some statistics that are based on data from fewer than three respondents, or that are dominated by data from one or two large respondents. In these cases, it may be possible for a knowledgeable person to estimate the information reported by a specific respondent.

Refinery Capacity History

Refinery capacity data collection was begun in 1918 by the Bureau of Mines, then in the Department of Commerce, and was operated on a voluntary basis until 1980. In 1980, the mandatory Energy Information Administration (EIA) Form EIA-177, "Capacity of Petroleum Refineries," was implemented. Information on refining capacity was expanded to include not only current year operations, but two-year projections, and refinery input/production data. Working storage capacity data was also added to the form and product categories were added for total coverage. Information on refinery downstream facilities was expanded to include a breakdown of thermal operations and to add vacuum distillation, catalytic hydrorefining and hydrotreating. Production capacity was also added to include information on isomerization, alkylation, aromatics, asphalt/road oil, coking, lubricants and hydrogen.

In 1983, the form was revised to improve the consistency and quality of the data collected by the EIA and redesignated as Form EIA-820, "Annual Refinery Report." Two sections for data previously reported monthly were added: (1) refinery receipts of crude oil by method of transportation, and (2) fuels consumed for all purposes at refineries. Also, the second year projections on refining capacity were eliminated. As a result of a study conducted by the EIA evaluating motor gasoline data collected by the Federal Highway Administration (FHWA) and by the EIA, motor gasoline blending plants were included for the first time in the respondent frame in order to produce more accurate statistics on the production of motor gasoline.

In 1987, the form was revised to reduce respondent burden and to better reflect current refinery operations through updated terminology. Information on projected input/production of refinery processing facilities was deleted. Several categories under catalytic hydrotreating were combined: naphtha and reformer feeds were combined into a single category as well as residual fuel oil and "other." Thermal cracking types, gas oil and "other" were also combined into a single category. Catalytic reforming types, conventional and bi-metallic were replaced with low and high pressure processing units. Two new categories were added: fuels solvent deasphalting was added to downstream charge capacity and sulfur recovery was added to production capacity.

In 1994, the form was revised to enable EIA to calculate utilization rates for certain downstream processing units and to reflect storage capacity of fuels mandated by the Clean Air Act Amendments of 1990. Additions to the form included calendar day downstream charge capacity for fluid and delayed coking, catalytic cracking, and catalytic hydrocracking. Also storage capacity categories for reformulated, oxygenated, and other finished motor gasoline were added, as well as oxygenate storage capacity and separate categories for high and low sulfur distillate fuel oil.

In 1995, motor gasoline blending plants were dropped from the survey frame, since by this time, the only section of the form that applied to them was working and shell storage capacity. Also in 1995, a decision was made to no longer collect storage capacity from shutdown refineries; therefore, these refineries were also eliminated from the survey frame.

In 1996, the survey was moved to a biennial schedule (every other year) and was renamed "Biennial Refinery Report." The survey was not conducted for January 1, 1996 or January 1, 1998. Respondents were not required

to submit data for crude oil and petroleum products consumed at refineries during 1995 and 1997. These data are available from the Form EIA-810, "Monthly Refinery Report." The requirement to submit data for refinery consumption of natural gas, coal, and purchased steam and electricity on the Form EIA-820 remained.

In 2000, the survey was moved to an annual schedule.

In 2004, the survey form was amended to reflect the increasing emphasis on the removal of sulfur from transportation fuels.

In 2009, natural gas used as feedstock for hydrogen plant production was added to the form. Also, isooctane production capacity was added.

In 2010, the survey form was amended to reflect the increasing use of bio-fuels. Storage capacities of biomass-based diesel fuel, other renewable diesel fuel and other renewable fuels were added to the form. Also, barrels per calendar day capacity of the catalytic reformer was added; previously this was only collected on a stream day basis.

In 2011, storage capacity data was removed from the form. Storage capacity is now being collected as of March 31 and September 30 on the Form EIA-810, "Monthly Refinery Report."

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AFPM UNITED STATES REFINING AND STORAGE CAPACITY REPORT

GLOSSARY

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Definitions of Petroleum Products and Other Terms (Revised June 2016)

Alcohol. The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group; CH3 (CH2) n-OH (e.g., methanol, ethanol, and tertiary butyl alcohol).

Alkylate. The product of an alkylation reaction. It usually refers to the high octane product from alkylation units. This alkylate is used in blending high octane gasoline.

Alkylation. A refining process for chemically combining isobutane with olefin hydrocarbons (e.g., propylene, butylenes) through the control of temperature and pressure in the presence of an acid catalyst, usually sulfuric acid or hydrofluoric acid. The product, alkylate, an isoparaffin, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

API Gravity. A scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

Degrees API = 141.5/sp.gr.60° F/60 °F -131.5

The higher the API gravity, the lighter the compound. Light crudes generally exceed 38 degrees API and heavy crudes are commonly labeled as all crudes with an API gravity of 22 degrees or below. Intermediate crudes fall in the range of 22 degrees to 38 degrees API gravity.

Aromatics. Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylenes (BTX).

Asphalt. A dark-brown-to-black cement-like material containing bitumens as the predominant constituent obtained by petroleum processing; used primarily for road construction. It includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. Note: The conversion factor for asphalt is 5.5 barrels per short ton.

ASTM. The acronym for the American Society for Testing and Materials.

Atmospheric Crude Oil Distillation. The refining process of separating crude oil components at atmospheric pressure by heating to temperatures of about 600 degrees Fahrenheit to 750 degrees Fahrenheit (depending on the nature of the crude oil and desired products) and subsequent condensing of the fractions by cooling.

Aviation Gasoline (Finished). A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. Note: Data on blending components are not counted in data on finished aviation gasoline.

Aviation Gasoline Blending Components. Naphtha's which will be used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylenes). Excludes oxygenates (alcohols, ethers), butanes, and pentanes.. Oxygenates are reported as other hydrocarbons, hydrogen, and oxygenates.

Barrel. A unit of volume equal to 42 U.S. gallons.

Barrels per Calendar Day. The amount of input that a distillation facility can process under usual operating conditions. The amount is expressed in terms of capacity during a 24-hour period and reduces the maximum processing capability of all units at the facility under continuous operation (see Barrels per Stream Day) to account for the following limitations that may delay, interrupt, or slow down production: the capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery's normal operation; the types and grades of inputs to be processed; the types and grades of products expected to be manufactured; the environmental constraints associated with refinery operations; the reduction of capacity for scheduled downtime due to such conditions as routine inspection, maintenance, repairs, and turnaround; and the reduction of capacity for unscheduled downtime due to such conditions as mechanical problems, repairs, and slowdowns.

Barrels Per Stream Day. The maximum number of barrels of input that a distillation facility can process within a 24-hour period when running at full capacity under optimal crude and product slate conditions with no allowance for downtime.

Benzene (C_6H_6). An aromatic hydrocarbon present in small proportion in some crude oils and made commercially from petroleum by the catalytic reforming of naphthenes in petroleum naphtha. It is also made from coal in the manufacture of coke. Used as a solvent, in manufacturing detergents, synthetic fibers, and petrochemicals and as a component of high-octane gasoline.

Blending Components. See ***Motor*** or ***Aviation Gasoline Blending Components***.

Blending Plant. A facility which has no refining capability but is either capable of producing finished motor gasoline through mechanical blending or blends oxygenates with motor gasoline.

Bonded Petroleum Imports. Petroleum imported and entered into Customs bonded storage. These imports are not included in the import statistics until they are: (1) withdrawn from storage free of duty for use as fuel for vessels and aircraft engaged in international trade; or (2) withdrawn from storage with duty paid for domestic use.

BTX. The acronym for the commercial petroleum aromatics benzene, toluene, and xylenes. See individual categories for definitions.

Bulk Station. A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of less than 50,000 barrels and receives its petroleum products by tank car or truck.

Bulk Terminal. A facility used primarily for the storage and/or marketing of petroleum products which has a total bulk storage capacity of 50,000 barrels or more and/or receives petroleum products by tanker, barge, or pipeline.

Butane (C_4H_{10}). A normally gaseous four-carbon straight-chain or branched-chain hydrocarbon extracted from natural gas or refinery gas streams. It includes normal butane and refinery-grade butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

Refinery-Grade Butane (C_4H_{10}). A refinery-produced stream that is composed predominantly of normal butane and/or isobutane and may also contain propane and/or natural gasoline. These streams may also contain significant levels of olefins and/or fluorides contamination.

Butylenes (C_4H_8). A four-carbon olefinic hydrocarbon recovered from refinery processes.

Captive Refinery Oxygenate Plants. Oxygenate production facilities located within or adjacent to a refinery complex.

Catalytic Cracking. The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalyst and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

Fresh Feeds. Crude oil or petroleum distillates which are being fed to processing units for the first time.

Recycled Feeds. Streams that have been processed and are fed back to the reactor for additional processing.

Catalytic Hydrocracking. A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel, and/or high grade fuel oil. The process uses one or more catalysts, depending upon product output, and can handle high sulfur feedstocks without prior desulfurization.

Catalytic Hydrotreating. A refining process for treating petroleum fractions from atmospheric or vacuum distillation units (e.g., naphthas, middle distillates, reformer feeds, residual fuel oil, and heavy gas oil) and other petroleum (e.g., cat cracked naphtha, coker naphtha, gas oil, etc.) in the presence of catalysts and substantial quantities of hydrogen. Hydrotreating includes desulfurization, removal of substances (e.g., nitrogen compounds) that deactivate catalysts, conversion of olefins to paraffins to reduce gum formation in gasoline, and other processes to upgrade the quality of the fractions.

Catalytic Reforming. A refining process using controlled heat and pressure with catalysts to rearrange certain hydrocarbon molecules,

thereby converting paraffinic and naphthenic hydrocarbons (e.g., low-octane gasoline boiling range fractions) into petrochemical feedstocks and higher octane stocks suitable for blending into finished gasoline. Catalytic reforming is reported in two categories. They are:

Low Pressure. A processing unit operating at less than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

High Pressure. A processing unit operating at either equal to or greater than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

Charge Capacity. The input (feed) capacity of the refinery processing facilities.

Coal. A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

Commercial Kerosene-Type Jet Fuel. *See* ***Kerosene-type Jet Fuel.***

Conventional Gasoline. See ***Motor Gasoline (Finished).***

Crude Oil. A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include:

Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included;

Small amounts of nonhydrocarbons produced from oil, such as sulfur and various metals;

Drip gases, and liquid hydrocarbons produced from oil sands, gilsonite, and oil shale.

Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Crude oil is considered as either domestic or foreign, according to the following:

Domestic. Crude oil produced in the United States or from its “outer continental shelf’ as defined in 43 USC 1331.

Foreign. Crude oil produced outside the United States. Imported Athabasca hydrocarbons (derived from Canadian oil sands) are included.

Crude Oil, Refinery Receipts. Receipts of domestic and foreign crude oil at a refinery. Includes all crude oil in transit except crude oil in transit by pipeline. Foreign crude oil is reported as a receipt only after entry through customs. Crude oil of foreign origin held in bonded storage is excluded.

Crude Oil Losses. Represents the volume of crude oil reported by petroleum refineries as being lost in their operations. These losses are due to spills, contamination, fires, etc. as opposed to refinery processing losses.

Crude Oil Production. The volume of crude oil produced from oil reservoirs during given periods of time. The amount of such production for a given period is measured as volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BS&W).

Crude Oil Qualities. Refers to two properties of crude oil, the sulfur content and API gravity, which affect processing complexity and product characteristics.

Delayed Coking. A process by which heavier crude oil fractions can be thermally decomposed under conditions of elevated temperatures and low pressure to produce a mixture of lighter oils and petroleum coke. The light oils can be processed further in other refinery units to meet product specifications. The coke can be used either as a fuel or in other applications such as the manufacturing of steel or aluminum.

Desulfurization. The removal of sulfur, from molten metals, petroleum oil, or flue gases. Petroleum desulfurization is a process that removes sulfur and its compounds from various streams during the refining process. Desulfurization processes include catalytic hydrotreating and other chemical/physical processes such as adsorption. Desulfurization processes vary based on the type of stream treated (e.g. naphtha, distillate, heavy gas oil, etc.) and the amount of sulfur removed (e.g. sulfur reduction to 10 ppm). See **Catalytic Hydrotreating.**

Disposition. The components of petroleum disposition are stock change, crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

Distillate Fuel Oil. A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

No. 1 Distillate. A light petroleum distillate that can be used as either a diesel fuel or a fuel oil.

No. 1 Diesel Fuel. A light distillate fuel oil that has distillation temperatures of 550 degrees Fahrenheit at the 90-percent point and meets the specifications defined in ASTM Specification D 975. It is used in high-speed diesel engines generally operated under frequent speed and load changes, such as those in city buses and similar vehicles.

No. 1 Fuel Oil. A light distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 550 degrees Fahrenheit at the 90-percent point and meets the specifications defined in ASTM Specification D 396. It is used primarily as fuel for portable outdoor stoves and portable outdoor heaters.

No. 2 Distillate. A petroleum distillate that can be used as either a diesel fuel or a fuel oil.

No. 2 Diesel Fuel. A fuel that has distillation temperatures of 500 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90 percent recovery point and meets the specifications defined in ASTM Specification D 975. It is used in high speed diesel engines that are generally operated under uniform speed and load conditions, such as those in railroad locomotives, trucks, and automobiles.

Low Sulfur No. 2 Diesel Fuel. No. 2 diesel fuel that has a sulfur level no higher than 0.05 percent by weight. It is used primarily in motor vehicle diesel engines for on-highway use.

High Sulfur No. 2 Diesel Fuel. No. 2 diesel fuel that has a sulfur level above 0.05 percent by weight.

No. 2 Fuel Oil (Heating Oil). A distillate fuel oil that has distillation temperatures of 400 degrees Fahrenheit at the 10-percent recovery point and 640 degrees Fahrenheit at the 90-percent recovery point and meets the specifications defined in ASTM Specification D 396. It is used in atomizing type burners for domestic heating or for moderate capacity commercial/industrial burner units.

No. 4 Fuel. A distillate fuel oil made by blending distillate fuel oil and residual fuel oil stocks. It conforms with ASTM Specification D 396 or Federal Specification VV-F-815C and is used extensively in industrial plants and in commercial burner installations that are not equipped with preheating facilities. It also includes No. 4 diesel fuel used for low-and medium-speed diesel engines and conforms to ASTM Specification D 975.

No. 4 Diesel Fuel. See ***No. 4 Fuel.***

No. 4 Fuel Oil. See ***No. 4 Fuel.***

Electricity (Purchased). Electricity purchased for refinery operations that is not produced within the refinery complex.

Ending Stocks. Primary stocks of crude oil and petroleum products held in storage as of 12 midnight on the last day of the month. Primary stocks include crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in-transit by water from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks exclude stocks of foreign origin that are held in bonded warehouse storage.

ETBE (Ethyl tertiary butyl ether) ***($CH_3)_3COC_2H_5$.*** An oxygenate blend stock formed by the catalytic etherification of isobutylene with ethanol.

Ethane (C_2H_6). A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -127.48 degrees Fahrenheit. It is extracted from natural gas and refinery gas streams.

Ether. A generic term applied to a group of organic chemical compounds composed of carbon, hydrogen, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., methyl tertiary butyl ether).

Ethylene (C_2H_4). An olefinic hydrocarbon recovered from refinery processes or petrochemical processes. Ethylene is used as a petrochemical feedstock for numerous chemical applications and the production of consumer goods.

Exports. Shipments of crude oil and petroleum products from the 50 States and the District of Columbia to foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Field Production. Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, new supply of other hydrocarbons/ oxygenates and motor gasoline blending components, and fuel ethanol blended into finished motor gasoline.

Flexicoking. A thermal cracking process which converts heavy hydrocarbons such as crude oil, oil sands bitumen, and distillation residues into light hydrocarbons. Feedstocks can be any pumpable hydrocarbons including those containing high concentrations of sulfur and metals.

Fluid Coking. A thermal cracking process utilizing the fluidized-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

Fresh Feed Input. Represents input of material (crude oil, unfinished oils, natural gas liquids, other hydrocarbons and oxygenates or finished products) to processing units at a refinery that is being processed (input) into a particular unit for the first time.

Examples:

(1) Unfinished oils coming out of a crude oil distillation unit which are input into a catalytic cracking unit are considered fresh feed to the catalytic cracking unit.

(2) Unfinished oils coming out of a catalytic cracking unit being looped back into the same catalytic cracking unit to be reprocessed are not considered fresh feed.

Fuel Ethanol (C_2H_5OH). An anhydrous denatured aliphatic alcohol intended for gasoline blending as described in Oxygenates definition.

Fuels Solvent Deasphalting. A refining process for removing asphalt compounds from petroleum fractions, such as reduced crude oil. The recovered stream from this process is used to produce fuel products.

Gas Oil. A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. It derives its name from having originally been used in the manufacture of illuminating gas. It is now used to produce distillate fuel oils and gasoline.

Gasohol. A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration of 10 percent or less by volume. Data on gasohol that has at least 2.7 percent oxygen, by weight, and is intended for sale inside carbon monoxide nonattainment areas are included in data on oxygenated gasoline. See Oxygenates.

Gasoline Blending Components. Naphthas which will be used for blending or compounding into finished aviation or motor gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylenes). Excludes oxygenates (alcohols, ethers), butane, and natural gasoline.

Gross Input to Atmospheric Crude Oil Distillation Units. Total input to atmospheric crude oil distillation units. Includes all crude oil, lease condensate, natural gas plant liquids, unfinished oils, liquefied refinery gases, slop oils, and other liquid hydrocarbons produced from oil sands, gilsonite, and oil shale.

Heavy Gas Oil. Petroleum distillates with an approximate boiling range from 651 degrees Fahrenheit to 1000 degrees Fahrenheit.

Hydrogen. The lightest of all gases, occurring chiefly in combination with oxygen in water; exists also in acids, bases, alcohols, petroleum, and other hydrocarbons.

Idle Capacity. The component of operable capacity that is not in operation and not under active repair, but capable of being placed in operation within 30 days; and capacity not in operation but under active repair that can be completed within 90 days.

Imported Crude Oil Burned As Fuel. The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported crude oil burned as fuel includes lease condensate and liquid hydrocarbons produced from oil sands, gilsonite, and oil shale.

Imports. Receipts of crude oil and petroleum products into the 50 States and the District of Columbia from foreign countries, Puerto Rico, the Virgin Islands, and other U.S. possessions and territories.

Isobutane (C_4H_{10}). A normally gaseous four-carbon, branched-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams.

Isobutylene (C_4H_8). An olefinic four-carbon hydrocarbon recovered from refinery processes or petrochemical processes.

Isohexane (C_6H_{14}). A saturated six-carbon branched-chain hydrocarbon. It is a colorless liquid that boils at a temperature of 156.2 degrees Fahrenheit.

Isomerization. A refining process which alters the fundamental arrangement of atoms in the molecule without adding or removing anything from the original material. Used to convert normal butane into isobutane (C_4), an alkylation process feedstock, and normal pentane and hexane into isopentane (C_5) and isohexane (C_6), high-octane gasoline components.

Isopentane. See ***Natural Gasoline***

Kerosene. A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D 3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. See ***Kerosene-Type Jet Fuel.***

Kerosene-Type Jet Fuel. A kerosene-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbojet and turboprop aircraft engines.

Commercial. Kerosene-type jet fuel intended for use in commercial aircraft.

Military. Kerosene-type jet fuel intended for use in military aircraft.

Lease Condensate. A mixture consisting primarily of pentanes and heavier hydrocarbons which is recovered as a liquid from natural gas in lease separation facilities. This category excludes natural gas liquids, such as butane and propane, which are recovered at downstream natural gas processing plants or facilities. See Natural Gas Liquids.

Light Gas Oils. Liquid petroleum distillates heavier than naphtha, with an approximate boiling range from 401 degrees Fahrenheit to 650 degrees Fahrenheit.

Liquefied Petroleum Gases (LPG). A group of hydrocarbon-based gases derived from crude oil refining or natural gas fractionation. They include: ethane, ethylene, propane, propylene, normal butane, butylenes, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.

Liquefied Refinery Gases (LRG). Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration, they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylenes, and isobutane/isobutylene. Excludes still gas.

Lubricants. Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacture of other products, or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades of lubricating oils from spindle oil to cylinder oil and those used in greases.

Merchant Oxygenate Plants. Oxygenate production facilities that are not associated with a petroleum refinery. Production from these facilities is sold under contract or on the spot market to refiners or other gasoline blenders.

Methanol (CH_3OH). A light, volatile alcohol intended for gasoline blending as described in Oxygenate definition.

Middle Distillates. A general classification of refined petroleum products that includes distillate fuel oil and kerosene.

Military Kerosene-Type Jet Fuel. See ***Kerosene-Type Jet Fuel.***

Miscellaneous Products. Includes all finished products not classified elsewhere (e.g., petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils). Note: Beginning with January 2004 data, naphtha-type jet fuel is included in Miscellaneous Products.

Motor Gasoline (Finished). A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10 percent recovery point to 365 to 374 degrees Fahrenheit at the 90 percent recovery point. “Motor Gasoline” includes conventional gasoline; all types of oxygenated gasoline, including gasohol; and reformulated gasoline, but excludes aviation gasoline. Note: Volumetric data on blending components, such as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline.

Conventional Gasoline. Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. Note: This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock.

OPRG. “Oxygenated Fuels Program Reformulated Gasoline” is reformulated gasoline which is intended for use in an oxygenated fuels program control area.

Oxygenated Gasoline (Including Gasohol). Oxygenated gasoline includes all finished motor gasoline, other than reformulated gasoline, having oxygen content of 2.0 percent or higher by weight. Gasohol containing a minimum 5.7 percent ethanol by volume is included in oxygenated gasoline. Oxygenated gasoline was reported as a separate product from January 1993 until December 2003 inclusive. Beginning with monthly data for January 2004, oxygenated gasoline is included in conventional gasoline. Historical data for oxygenated gasoline excluded Federal Oxygenated Program Reformulated Gasoline (OPRG). Historical oxygenated gasoline data also excluded other reformulated gasoline with a seasonal oxygen requirement regardless of season.

Reformulated Gasoline. Finished gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. It includes gasoline produced to meet or exceed emissions performance and benzene content standards of federal-program reformulated gasoline even though the gasoline may not meet all of the composition requirements (e.g. oxygen content) of federal-program reformulated gasoline. Reformulated gasoline excludes Reformulated Blendstock for Oxygenate Blending (RBOB) and Gasoline Treated as Blendstock (GTAB). Historical reformulated gasoline statistics included Oxygenated Fuels Program Reformulated Gasoline (OPRG).

Reformulated (Blended with Ether). Reformulated gasoline blended with an ether component (e.g. methyl tertiary butyl ether) at a terminal or refinery to raise the oxygen content.

Reformulated (Blended with Alcohol). Reformulated gasoline blended with an alcohol component (e.g. fuel ethanol) at a terminal or refinery to raise the oxygen content.

Reformulated (Non-Oxygenated). Reformulated gasoline without added ether or alcohol components.

Motor Gasoline Blending. Mechanical mixing of motor gasoline blending components, and oxygenates when required, to produce finished motor gasoline. Finished motor gasoline may be further mixed with other motor gasoline blending components or oxygenates, resulting in increased volumes of finished motor gasoline and/or changes in the formulation of finished motor gasoline (e.g., conventional motor

gasoline mixed with MTBE to produce oxygenated motor gasoline).

Motor Gasoline Blending Components. Naphthas (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, xylenes) used for blending or compounding into finished motor gasoline. These components include reformulated gasoline blendstock for oxygenate blending (RBOB) but exclude oxygenates (alcohols, ethers), butane, and pentanes. Note: Oxygenates are reported as individual components and are included in the total for other hydrocarbons and oxygenates.

Conventional Blendstock for Oxygenate Blending (CBOB). Conventional gasoline blendstock intended for blending with oxygenates downstream of the refinery where it was produced. CBOB must become conventional gasoline after blending with oxygenates. Motor gasoline blending components that require blending other than with oxygenates to become finished conventional gasoline are reported as All Other Motor Gasoline Blending Components. Excludes reformulated blendstock for oxygenate blending(RBOB).

Gasoline Treated as Blendstock (GTAB). Non-certified Foreign Refinery gasoline classified by an importer as blendstock to be either blended or reclassified with respect to reformulated or conventional gasoline. GTAB is classified as either reformulated or conventional based on emissions performance and the intended end use.

Reformulated Blendstock for Oxygenate Blending (RBOB). Specially produced reformulated gasoline blendstock intended for blending with oxygenates downstream of the refinery where it was produced. Includes RBOB used to meet requirements of the Federal reformulated gasoline program and other blendstock intended for blending with oxygenates to produce finished gasoline that meets or exceeds emissions performance requirements of Federal reformulated gasoline (e.g. California RBOB and Arizona RBOB). Excludes conventional gasoline blendstocks for oxygenate blending (CBOB).

RBOB for Blending with Ether. Motor gasoline blending components intended to be blended with an ether component (e.g. methyl tertiary butyl ether) at a terminal or refinery to raise the oxygen content.

RBOB for Blending with Alcohol. Motor gasoline blending components intended to be blended with an alcohol component (e.g. fuel ethanol) at a terminal or refinery to raise the oxygen content.

All Other Motor Gasoline Blending Components. Naphthas (e.g. straight-run gasoline, alkylate, reformate, benzene, toluene, xylenes) used for blending or compounding into finished motor gasoline. Includes receipts and inputs of Gasoline Treated as Blendstock (GTAB). Excludes conventional blendstock for oxygenate blending (CBOB), reformulated blendstock for oxygenate blending, oxygenates (e.g. fuel ethanol and methyl tertiary butyl ether), butane, and natural gasoline.

MTBE (Methyl tertiary butyl ether) $(CH_3)_3COCH_3$. An ether intended for gasoline blending as described in Oxygenate definition.

Naphtha. A generic term applied to a petroleum fraction with an approximate boiling range between 122 degrees Fahrenheit and 400 degrees Fahrenheit.

Naphtha Less Than 401° F. See ***Petrochemical Feedstocks.***

Naphtha-Type Jet Fuel. A fuel in the heavy naphtha boiling range having an average gravity of 52.8 degrees API, 20 to 90 percent distillation temperatures of 290 degrees to 470 degrees Fahrenheit, and meeting Military Specification MIL-T-5624L (Grade JP-4). It is used primarily for military turbojet and turboprop aircraft engines because it has a lower freeze point than other aviation fuels and meets engine requirements at high altitudes and speeds. Note: Beginning with January 2004 data, naphtha-type jet fuel is included in ***Miscellaneous Products.***

Natural Gas. A gaseous mixture of hydrocarbon compounds, the primary one being ***methane***.

Natural Gas Field Facility. A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, normal butane, natural gasoline, etc., and to control the quality of natural gas to be marketed.

Natural Gas Liquids. Those hydrocarbons in natural gas that are separated from the gas as liquids through the process of absorption,

condensation, adsorption, or other methods in gas processing or cycling plants. Generally such liquids consist of propane and heavier hydrocarbons and are commonly referred to as lease condensate, natural gasoline, and liquefied petroleum gases. Natural gas liquids include natural gas plant liquids (primarily ethane, propane, butane, and isobutane; see ***Natural Gas Plant Liquids***) and lease condensate (primarily pentanes produced from natural gas at lease separators and field facilities; see ***Lease Condensate***).

Natural Gas Plant Liquids. Those hydrocarbons in natural gas that are separated as liquids at natural gas processing plants, fractionating and cycling plants, and, in some instances, field facilities. Lease condensate is excluded. Products obtained include ethane; liquefied petroleum gases (propane, butanes, propane-butane mixtures, ethane-propane mixtures); isopentane; and other small quantities of finished products, such as motor gasoline, special naphthas, jet fuel, kerosene, and distillate fuel oil.

Natural Gas Processing Plant. Facilities designed to recover natural gas liquids from a stream of natural gas that may or may not have passed through lease separators and/or field separation facilities. These facilities control the quality of the natural gas to be marketed. Cycling plants are classified as gas processing plants.

Natural Gasoline and Isopentane. A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated five-carbon branched-chain hydrocarbon, (C_5H_{12}), obtained by fractionation of natural gasoline or isomerization of normal pentane.

Net Receipts. The difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge.

Normal Butane. See ***Butane***.

OPEC. The acronym for the Organization of Petroleum Exporting Countries, that have organized for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The Neutral Zone between Kuwait and Saudi Arabia is considered part of OPEC. Prior to January 1, 1993, Ecuador was a member of OPEC. Prior to January 1995, Gabon was a member of OPEC.

Operable Capacity. The amount of capacity that, at the beginning of the period, is in operation; not in operation and not under active repair, but capable of being placed in operation within 30 days; or not in operation but under active repair that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

Operating Capacity. The component of operable capacity that is in operation at the beginning of the period.

Operable Utilization Rate. Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operable refining capacity of the units.

Operating Utilization Rate. Represents the utilization of the atmospheric crude oil distillation units. The rate is calculated by dividing the gross input to these units by the operating refining capacity of the units.

Other Hydrocarbons. Materials received by a refinery and consumed as a raw material. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

Other Oils Equal To or Greater Than 401° F. See Petrochemical Feedstocks.

Other Oxygenates. Other aliphatic alcohols and aliphatic ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol).
Oxygenated Gasoline. See Motor Gasoline (Finished).

Oxygenates. Substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend. Fuel Ethanol, Methyl Tertiary Butyl Ether (MTBE), Ethyl Tertiary Butyl Ether (ETBE), and methanol are common oxygenates.

Fuel Ethanol. Blends of up to 10 percent by volume anhydrous ethanol (200 proof) (commonly referred to as the “gasohol waiver”).

Methanol. Blends of methanol and gasoline-grade tertiary butyl alcohol (GTBA) such that the total oxygen content does not exceed 3.5 percent by weight and the ratio of methanol to GTBA is less than or equal to 1. It is also specified that this blended fuel must meet ASTM volatility specifications (commonly referred to as the "ARCO" waiver).
Blends of up to 5.0 percent by volume methanol with a minimum of 2.5 percent by volume co-solvent alcohols having a carbon number of 4 or less (i.e., ethanol, propanol, butanol, and/or GTBA). The total oxygen must not exceed 3.7 percent by weight, and the blend must meet ASTM volatility specifications as well as phase separation and alcohol purity specifications (commonly referred to as the "DuPont" waiver).

MTBE (Methyl tertiary butyl ether). Blends up to 15.0 percent by volume MTBE which must meet the ASTM D4814 specifications. Blenders must take precautions that the blends are not used as base gasolines for other oxygenated blends (commonly referred to as the "Sun" waiver).

Pentanes Plus. A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline, and plant condensate.

Persian Gulf. The countries that comprise the Persian Gulf are: Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

Petrochemical Feedstocks. Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics. The categories reported are "Naphtha Less Than 401° F" and "Other Oils Equal To or Greater Than 401° F."

Naphtha less Than 401° F. A naphtha with a boiling range of less than 401 degrees Fahrenheit that is intended for use as a petrochemical feedstock.

Other Oils Equal To or Greater Than 401° F. Oils with a boiling range equal to or greater than 401 degrees Fahrenheit that are intended for use as a petrochemical feedstock.

Petroleum Administration for Defense (PAD) Districts. Geographic aggregations of the 50 States and the District of Columbia into five districts by the Petroleum Administration for Defense in 1950. These districts were originally defined during World War II for purposes of administering oil allocation.

Petroleum Coke. A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. Coke from petroleum has a heating value of 6.024 million Btu per barrel.

Marketable Coke. Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This "green" coke may be sold as is or further purified by calcining.

Catalyst Coke. The only catalytic coke used as a fuel is the coke on catalyst in the FCC process. In other catalytic processes there is coke deposited on catalyst, but it is not regenerated in a way such that the heat of combustion is recovered.

Petroleum Products. Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Pipeline (Petroleum). Crude oil and product pipelines used to transport crude oil and petroleum products respectively, (including interstate, intrastate, and intra-company pipelines) within the 50 States and the District of Columbia.

Plant Condensate. One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

Processing Gain. The volumetric amount by which total output is greater than input for a given period of time. This difference is due to the processing of crude oil into products which, in total, have a lower specific gravity than the crude oil processed.

Processing Loss. The volumetric amount by which total refinery output is less than input for a given period of time. This difference is due to the processing of crude oil into products which, in

total, have a higher specific gravity than the crude oil processed.

Product Supplied, Crude Oil. Crude oil burned on leases and by pipelines as fuel.

Production Capacity. The maximum amount of product that can be produced from processing facilities.

Products Supplied. Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted for crude oil, (plus net receipts when calculated on a PAD District basis), minus stock change, minus crude oil losses, minus refinery inputs, minus exports.

Propane (C_3H_8). A normally gaseous three-carbon straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

Propylene (C_3H_6). An olefinic three-carbon hydrocarbon recovered from refinery processes or petrochemical processes.

Propylene (C_3H_6) (nonfuel use). Propylene that is intended for use in nonfuel applications such as petrochemical manufacturing. Nonfuel use propylene includes chemical-grade propylene, polymer-grade propylene, and trace amounts of propane. Nonfuel use propylene also includes the propylene component of propane/propylene mixes where the propylene will be separated from the mix in a propane/propylene splitting process. Excluded is the propylene component of propane/propylene mixes where the propylene component of the mix is intended for sale into the fuel market.

Refinery. An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and oxygenates.

Refinery-Grade Butane. See ***Butane.***

Refinery Input, Crude Oil. Total crude oil (domestic plus foreign) input to crude oil distillation units and other refinery processing units (cokers, etc.).

Refinery Input, Total. The raw materials and intermediate materials processed at refineries to produce finished petroleum products. They include crude oil, products of natural gas processing plants, unfinished oils, other hydrocarbons and oxygenates, motor gasoline and aviation gasoline blending components and finished petroleum products.

Refinery Production. Petroleum products produced at a refinery or blending plant. Published production of these products equals refinery production minus refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. Refinery production of unfinished oils, and motor and aviation gasoline blending components appear on a net basis under refinery input.

Refinery Yield. Refinery yield (expressed as a percentage) represents the percent of finished product produced from input of crude oil and net input of unfinished oils. It is calculated by dividing the sum of crude oil and net unfinished input into the individual net production of finished products. Before calculating the yield for finished motor gasoline, the input of natural gas liquids, other hydrocarbons and oxygenates, and net input of motor gasoline blending components must be subtracted from the net production of finished motor gasoline. Before calculating the yield for finished aviation gasoline, input of aviation gasoline blending components must be subtracted from the net production of finished aviation gasoline.

Reformulated Gasoline. See ***Motor Gasoline (Finished).***

Residual Fuel Oil. A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore power plants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric

power, space heating, vessel bunkering, and various industrial purposes.

Residuum. Residue from crude oil after distilling off all but the heaviest components, with a boiling range greater than 1000 degrees Fahrenheit.

Road Oil. Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

Shell Storage Capacity. The design capacity of a petroleum storage tank which is always greater than or equal to working storage capacity.

Special Naphthas. All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

Steam (Purchased). Steam, purchased for use by a refinery that was not generated from within the refinery complex.

Still Gas (Refinery Gas). Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylenes, propane, propylene, etc. Still gas is used as a refinery fuel and a petrochemical feedstock. The conversion factor is 6 million BTU's per fuel oil equivalent barrel.

Stock Change. The difference between stocks at the beginning of the reporting period and stocks at the end of the reporting period. Note: A negative number indicates a decrease (i.e., a drawdown) in stocks and a positive number indicates an increase (i.e., a buildup) in stocks during the reporting period.

Strategic Petroleum Reserve (SPR). Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

Sulfur. A yellowish nonmetallic element, sometimes known as "brimstone." It is present at various levels of concentration in many fossil fuels whose combustion releases sulfur compounds that are considered harmful to the environment. Some of the most commonly used fossil fuels are categorized according to their sulfur content, with lower sulfur fuels usually selling at a higher price. Note: No. 2 Distillate fuel is currently reported as having either a 0.05 percent or lower sulfur level for on-highway vehicle use or a greater than 0.05 percent sulfur level for off-highway use, home heating oil, and commercial and industrial uses. This also includes Ultra Low Sulfur Diesel (<15 ppm sulfur). Residual fuel, regardless of use, is classified as having either no more than 1 percent sulfur or greater than 1 percent sulfur. Coal is also classified as being low-sulfur at concentrations of 1 percent or less or high-sulfur at concentrations greater than 1 percent.

Supply. The components of petroleum supply are field production, refinery production, imports, and net receipts when calculated on a PAD District basis.

TAME (Tertiary amyl methyl ether) $(CH_3)_2(C_2H_5)COCH_3$. An oxygenate blend stock formed by the catalytic etherification of isoamylene with methanol.

Tank Farm. An installation used by gathering and trunk pipeline companies, crude oil producers, and terminal operators (except refineries) to store crude oil.

Tanker and Barge. Vessels that transport crude oil or petroleum products. Data are reported for movements between PAD Districts; from a PAD District to the Panama Canal; or from the Panama Canal to a PAD District.

TBA (Tertiary butyl alcohol) $(CH_3)_3COH$. An alcohol primarily used as a chemical feedstock, a solvent or feedstock for isobutylene production for MTBE; produced as a co-product of propylene oxide production or by direct hydration of isobutylene.

Thermal Cracking. A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking includes gas oil, visbreaking, fluid coking, delayed coking, and other thermal cracking processes (e.g., Flexicoking). See individual categories for definition.

Toluene ($C_6H_5CH_3$). Colorless liquid of the aromatic group of petroleum hydrocarbons, made by the catalytic reforming of petroleum naphthas containing methyl cyclohexane. A

high-octane gasoline-blending agent, solvent, and chemical intermediate, base for TNT.

Unaccounted for Crude Oil. Represents the arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production plus imports minus changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

Unfinished Oils. All oils requiring further processing, except those requiring only mechanical blending. Unfinished oils are produced by partial refining of crude oil and include naphthas and lighter oils, kerosene and light gas oils, heavy gas oils, and residuum.

Unfractionated Streams. Mixtures of unsegregated natural gas liquid components excluding, those in plant condensate. This product is extracted from natural gas.

United States. The United States is defined as the 50 States and the District of Columbia.

Vacuum Distillation. Distillation under reduced pressure (less than atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique prevents cracking or decomposition of the charge stock which occurs above 1000°F.

Visbreaking. A thermal cracking process in which heavy atmospheric or vacuum-still bottoms are cracked at moderate temperatures to increase production of distillate products and reduce viscosity of the distillation residues.

Wax. A solid or semi-solid material consisting of a mixture of hydrocarbons obtained or derived from petroleum fractions, or through a Fischer-Tropsch type process, in which the straight-chained paraffin series predominates. This includes all marketable wax, whether crude or refined, with a congealing point (ASTM D 938) between 100 and 200 degrees Fahrenheit and a maximum oil content (ASTM D 3235) of 50 weight percent.

Working Storage Capacity. The difference in volume between the maximum safe fill capacity and the quantity below which pump suction is ineffective (bottoms).

Xylenes ($C_6H_4(CH_3)_2$). Colorless liquid of the aromatic group of hydrocarbons made the catalytic reforming of certain naphthenic petroleum fractions. Used as high-octane motor and aviation gasoline blending agents, solvents, chemical intermediates. Isomers are metaxylene, orthoxylene, paraxylene.

Notes

Notes

AFPM
American
Fuel & Petrochemical
Manufacturers

1667 K Street, NW
Suite 700
Washington, DC
20006

202.457.0480 voice
202.457.0486 fax
afpm.org