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February 14, 2014

Richard Corey
Executive Officer
California Air Resources Board
1001 I Street
Sacramento CA, 95814

RE: Phillips 66 comments on January 31, 2014 INFORMAL DISCUSSION DRAFT-Cap and Trade

Dear Richard:

Phillips 66 employs over 1,200 employees in the state with significant operations in California. Our operations include oil refineries, a calciner, petroleum product pipelines and terminals. We write to you today as the business units which must comply with the stationary source Cap and Trade program which only applies to California refineries. Phillips 66 also supports the comments provided by the Coalition for Fair and Equitable Allocation, however we wish to highlight several concerns with the January 31, 2013 draft that are important.

The comments detailed below focus on three aspects of the INFORMAL DISCUSSION DRAFT (Discussion Draft):

1. Atypical Refinery Benchmarking—Jointly Operated Definition
2. Coke Calcining – Cap Adjustment Factor (categorization under Table 9-2: Cap Adjustment Factors for Allowance Allocation)
3. Process Concerns

1. Atypical Refinery Benchmarking – Jointly Operated Definition

The regulatory process regarding refinery benchmarking has not provided Phillips 66 the opportunity to fully review and analyze its impacts on our operations, specifically the issue of "atypical" refinery benchmarking as related to "jointly operated facilities". In 2011, we faced a similar process on the initial

Cap and Trade proceeding, where the administrative process was truncated because the time was running out on the rulemaking. Now it seems the decisions of 2011 are set in stone and the basis for the current policy discussion. The January 31, 2014 definition of "jointly operated" has created more questions than answers – equity, how the definition will be applied in practice and the arbitrary selection of '50% of the input' criteria – and because it is lacks a policy basis. The new definition for jointly operated is a solution without a problem now that the Complexity Weighted Barrel methodology has been adopted and the energy it takes to address intermediates is put directly into the benchmark. This fact makes jointly operated unnecessary and double counting.

First and foremost, our Santa Maria facility meets the proposed "atypical" refinery metrics adopted by the Board based on its size and complexity. By this definition, this refinery historically has operated as an Atypical facility. But the proposed "jointly operated facilities" component is troubling and lacks rational policy justification. The distinction proposed by staff between typical and atypical refineries is based on having less than 12 process units and less than 20 million barrels crude through the atmospheric distiller during an allocation year. Phillips 66 supports these metrics. *Our Santa Maria refinery clearly fits in the midpoint range of the small atypical refinery category.*

We believe staff will have a very difficult time defining "jointly operated" in such a way as to capture our Santa Maria Refinery and not include many other refineries that produce a high proportion of intermediate products because technically, our Santa Maria facility operates like other small California refineries. The products from the Santa Maria facility are transported via an integrated regional common-carrier pipeline system—a system that contains four separate lines (numbered 100, 200, 300 and 400) with a number of tank farms along the way where products are comingled by truck shipments from other refineries.

As we have recently relayed to staff, "the pipeline" which CARB staff has cited as a basis for the concept of our two facilities "operating as one" is actually a complex system. The complexity of this system was not raised by Phillips 66 representatives in prior development of the Cap and Trade Regulation as it was not relevant at the time. But as this concept of "Jointly Operated" was forwarded, it became clear that the details of the system were important. This system connects third parties and other refineries with various input and output locations. In fact, a multitude of products and crude oil are transported, stored and blended at different pumping stations/truck rack/tank farms along the 400 mile pipeline segment, including neat crude. While some of the feedstock materials come from Santa Maria, they are offloaded, stored and mixed with other products arriving by third party truck providers, taken out of the pipelines and blended before reaching Rodeo. In fact, the pipeline system routinely accepts two other refiners' output for transporting and there are contractual business agreements between these companies and Phillips 66 products for the delivery of their products into the system. Economics drive Phillips 66 to utilize Santa Maria's products rather than sell them as commodities into the marketplace. Attempts to define "jointly operated" to capture these commodities would only negatively impact instate refining of intermediate products and blend stocks tipping the economics towards import and creating a program that encourages rather than minimizes leakage, the entire purpose for distributing free allowances.

Phillips 66 is operating separate business units: refining (where we manufacture fuel) and transportation (where we move products through a multitude of pipelines and storage tank farms and blend fuel stocks).

Our operations use proprietary and third-party blending terminals and tank farms along the way accepting trucking contract loads as well.

The complex interconnection of small refining facilities in California will be impacted by this new policy direction, leading to serious unintended consequences, including encouraging leakage of refined intermediate products. We expect that many "atypical" refineries have commercial relationships with California's major refiners. Phillips 66's operations are similar from a technical standpoint, and should not be singled out without adequate policy justification. Recent meetings with staff have failed to provide such a policy justification.

Refinery benchmarking is a very significant policy decision which not only establishes the foundation of the Cap and Trade Regulation, but our competitive position within California. Our competitors in-state and out-of-state do not face this additional liability. This concept is counter to the free allowance policy of leakage prevention and certainly points to our refinery.

Comparing less complex refineries against larger more, complex refineries has been acknowledged to be the wrong policy choice, and led to the formation of an "atypical" benchmarking category. Circumventing this new category by including the "jointly operated facilities" definition is not justifiable. The Discussion Draft just released has not identified any safeguards to prevent leakage, nor does it contain any economic or environmental analysis to support such a distinction. It also creates a conflict in definitions with the Mandatory Reporting Regulations already adopted by the Board as is discussed below. Staff's original justification when the concept was introduced was a vague oral explanation alluding that facilities linked by pipelines mean that one refinery cannot operate without the other. We believe a lot has been learned and shared since October 2013. The San Francisco refinery located in Contra Costa County is 250 driving miles from the Santa Maria Refinery, and though not currently configured to do so, each could operate independent of the other. This is no different than any other smaller "atypical" refinery that lacks the on-site infrastructure to completely process a barrel of crude oil.

CARB must not create a definition for small refiners rather than small refineries. This is an important distinction. While the Santa Maria Refinery refines intermediate products, and these unfinished oils are transported, blended with other products and eventually make it to Rodeo to make finished product, Rodeo could most certainly operate without the intermediate made by Santa Maria and shipped by pipeline. Intermediate products are commodities that could be brought to Rodeo by ship, barge, rail or other pipeline where we purchase from another source. This leakage is exactly what the atypical benchmark was created to protect against.

Imports of intermediates or finished oils would be advantaged by CARB's new policy of jointly operated facilities. The Energy Information Administration (EIA) keeps statistics on imports of intermediates/unfinished oils and reports imports by country of origin. Historical trends demonstrate an increase in intermediate/unfinished oil imports. By CARB refusing to treat intermediates/unfinished oils

as a commodity, the instate refining of these commercial products becomes disadvantaged and the import of such products become more attractive. The PADD District Imports Table produced by the EIA demonstrates that imports are real and significant.

PADD District Imports Unfinished Oils Barrels Per Day

Region (PADD)	2008	2009	2010	2011	2012
East Coast (1)	173,000	134,000	88,000	88,000	112,000
Midwest (2)	9,000	10,000	0	1,000	0
Gulf Coast (3)	522,000	474,000	462,000	535,000	434,000
Rocky Mountain (4)	0	0	0	0	0
West Coast (5)	58,000	58,000	56,000	63,000	51,000

Some of our competitors choose to import previously processed intermediates from out of state or country rather than refine it from California's crude oil, which begs the questions: Would their use of imported intermediates link their instate refinery to the state or country where the intermediate was refined? Wouldn't this policy increase marine and other transportation of intermediates into California without this same penalty? Why would CARB create a policy that discriminates and penalizes a California company that meets all the state environmental regulations in favor of out-of-state intermediate imports and that have to be transported here?

Looking at EIA trends, PADD 5 statistics demonstrate an increasing number of intermediate/ unfinished oil imports over the last four decades.

West Coast (PADD 5) Imports by PADD of Processing of Unfinished Oils (Barrels per Day)

Decade	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
1980s		8,000	8,000	5,000	13,000	2,000	6,000	5,000	8,000	7,000
1990s	5,000	9,000	8,000	13,000	24,000	19,000	23,000	20,000	24,000	33,000
2000s	25,000	39,000	33,000	28,000	53,000	59,000	65,000	69,000	58,000	58,000
2010s	56,000	63,000	51,000							

We are concerned that the staff doesn't appreciate and understand the complexity of the industry or our facilities, and the push to try to establish a definition for the "jointly operated" concept could present serious, unintended consequences for the entire refining sector as intermediates are shipped by pipelines throughout the underground pipeline infrastructure statewide.

Furthermore, CARB staff's proposal is a fundamental change to the longstanding definition of a "stationary source facility". By linking otherwise independent facilities as single facility for purposes of an atypical determination, CARB is modifying the overarching policy definition of federal and state stationary source permitting. Most refineries are accessible by underground pipeline to receive or deliver a multitude of refining feed stocks. Facilities can operate jointly through company ownership, third party long-term contract, or commodity streams. The definition of facility, embedded in the CARB MRR regulation definition, is why we report our five operating sites separately to CARB:

> "Facility," unless otherwise specified in relation to natural gas distribution facilities and onshore petroleum and natural gas production facilities as defined in section 95102(a), means any physical property, plant, building, structure, source, or stationary **equipment located on one or more contiguous or adjacent properties in actual physical contact** or separated solely by a public roadway or other public right-of-way and under common ownership or common control, that emits or may emit any greenhouse gas.

The key words here are "continuous or adjacent". Modifying the regulation to capture refiners instead of refineries will create competitive disadvantages for only "atypical" refineries. The policy justification and objective is punitive and will not result in improved energy efficiency on-site, but instead decreases much needed allowances to operate in CA and encourages, by regulation, leakage.

The California refining industry is a complex intersection of related facilities and operating entities. By pushing a "jointly operated" concept, it seems that CARB is implying that each facility is truly independent of the rest of the industry. This is false and precisely why the long held definitions used in traditional air pollution control are appropriate—because they limit the scope to the actual location of the emissions and do not attempt to sort through commercial relationships. California's dozen or so refineries are interdependent on each other for a wide variety of needs and commercial transactions too numerous to list. Phillips 66 is physically linked to other refineries, third parties and manufacturers numerous independent streams of many products at each of our five sites.

Phillips 66 continues to strongly believe that this is an inappropriate attempt to combine otherwise distinctly-operated small refineries with other independently operated larger facilities for sole purposes of allowance allocation. Each small refinery in California is uniquely subject to leakage from out-of-state competition. For this reason alone, and the others contained in this section, the "atypical" definition should not include any reference to "jointly operated", and any work on that front should be considered counterproductive.

RECOMMENDATION: Phillips 66 respectfully requests CARB move forward with the Cap and Trade Regulation without the jointly operated definition and therefore retain the current definition of facility within the rule, remaining consistent with GHG reporting. To our knowledge, this concept has been acknowledged by, and only affects, a single entity—Phillips 66.

2. Coke Calcining—Cap Adjustment Factor

Phillips 66 and CARB staff have been in discussions about the application of the declining cap adjustment factors shown in the California Air Resources Board (CARB) Table 9-2 of the Cap and Trade regulation to the coke calcining sector. The category of factors currently applied to other sectors with process emissions greater than 50%, we believe, incorrectly excludes coke calcining as pointed out in our previous written comments. The justification for selecting the slower declining cap factor for coke calcining is clear.

CARB has previously stated the requirements to be granted a slower cap decline factor: 1) process emissions greater than 50%, 2) a high leakage risk and 3) high emissions intensity. It is clear these conditions have all been satisfied vis-à-vis coke calcining and been stated publically by CARB staff, in existing Cap and Trade regulatory documents. AB 32 specifically speaks to handling leakage, especially with an international product such as refined calcined coke.

Somehow, a different determination about calciners has been concluded based on a conservative assumption that calciners do not have high emissions intensity based on the emissions intensity of industries under the combined category of NAICS Code 324 (Petroleum and Coal Products Manufacturing). NAICS Code 324 is made up of five subcategories: Petroleum refineries, two related to asphalt manufacturing, one for lubricant manufacturing, and 324199 - for "All Other Petroleum and Coal Products Manufacturing". We believe that NAICS code 324 is an error and is too broad for coke calcining categorization.

California calciners appropriately use the NAICS Code 324199. Additionally, the U.S. Department of Commerce identifies that NAICS Code 324199 is appropriate and is recommended specifically for "Calcining petroleum coke from refined petroleum". The selection of appropriate NAICS Code 324199 from the U.S. Department of Commerce is so clear we cannot envision any calciner owner would not use the 324199 code. NAICS Code 324199 also applies to other industries that are similar to calcining (primarily using coke ovens), whereas the broader Code 324 applies to many industries that are very different from calcining. Industries associated with NAICS Code 324199 have high emissions intensity, as already published in Appendix K of the 2010 Cap and Trade rulemaking. Therefore, it is befuddling why coke calcining has been omitted from Table 9-2's slower cap decline factor. Calciners meet all three requirements to be eligible for the slower declining cap adjustment factors.

RECOMMENDATION: Phillips 66 requests coke calcining be assigned the slower Cap Adjustment Factor in the upcoming 15-day amendment package.

3. Process Concerns

Lastly, we again note that the administrative process associated with refinery benchmarking was truncated at the end of the October rulemaking. These amendments require in-depth analysis and subsequent significant decisions may affect the viability of entire facilities. The idea of a robust public process is defeated by having to make such critical business decisions in a relatively rushed manner. Because some important portions of the actual language of the proposals have just been provided to stakeholders, we request that the process leading up to a required 15-day regulatory amendment package be given the utmost of deference to the need of stakeholders to understand and analyze Staff's proposal and its underlying support data.

Historically, the 15-day process is intended to be a smoothing and shaping exercise on firmly established, stakeholder-vetted, and Board-approved policies. Unfortunately, that is not occurring on these specific topics with the view of the language recently released at the end of January 2014. It creates a potential obstacle to the adoption of this final package. We understand that staff is continuing to work on this issue in anticipation of the formal 15-day regulatory amendment package due to be published in the coming weeks, with a tentative April Board Meeting on the 2014 calendar to finalize this and other policy issues associated with the Cap and Trade program. Phillips 66 stands ready to provide feedback and engage in constructive dialogue so that we can avoid a last minute deadline process.

Conclusion

We hope we have demonstrated that pursuing the "jointly operated" concept is inappropriate and that calcining operations deserve to have the slower Cap Assistance Factor. Thank you for your attention to these important and unanswered rulemaking matters. Stephanie Williams, our State Government Affairs Manager, is available to help resolve these matters before the 15-day package is released and changes would be impossible to make. She can be reached at (916) 447-5572.

Sincerely,

Chris R. Chandler

Manager, Los Angeles Refinery

Mark E. Evans

Manager, Rodeo Refinery

CC: Mary Nichols
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311448446.1

Refinery Net Input

Area: PADD 5 | Period-Unit: Annual-Thousand Barrels

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Show Data By: ◉ Product ○ Area	GraphClear	2007	2008	2009	2010	2011	2012	View History
Total	☐	628,228	628,286	558,594	553,736	566,455	557,984	2005-2012
Crude Oil	☐	934,360	940,815	869,420	858,073	856,373	853,106	2005-2012
Natural Gas Plant Liquids	☐	23,993	22,701	24,750	20,588	22,237	24,108	2005-2012
Pentanes Plus	☐	7,168	7,544	7,828	6,891	7,113	7,565	2005-2012
Liquefied Petroleum Gases	☐	16,825	15,157	16,922	13,697	15,124	16,543	2005-2012
Normal Butane	☐	8,478	8,048	9,335	8,099	8,445	9,346	2005-2012
Isobutane	☐	8,347	7,109	7,587	5,598	6,679	7,197	2005-2012
Other Liquids	☐	-330,125	-335,230	-335,576	-324,925	-312,155	-319,230	2005-2012
Hydrogen/Oxygenates/Renewables/ Other Hydrocarbons	☐	12,161	13,735	12,175	16,251	17,584	17,701	2005-2012
Hydrogen	☐			11,059	14,668	15,766	15,829	2009-2012
Renewable Fuels (incl. Fuel Ethanol)	☐			1,109	1,583	1,818	1,872	2009-2012
Fuel Ethanol	☐	903	1,159	1,109	1,537	1,724	1,759	2005-2012
Renewable Diesel Fuel	☐				46	94	113	2010-2012
Other Hydrocarbons	☐			7				2009-2009
Unfinished Oils (net)	☐	13,521	18,769	19,810	14,580	27,492	21,301	2005-2012
Naphthas and Lighter	☐	-6,021	-4,257	-75	106	-2,074	-180	2005-2012
Kerosene and Light Gas Oils	☐	-2,694	2,301	-17	-3,498	458	-1,539	2005-2012
Heavy Gas Oils	☐	20,695	18,562	18,811	18,269	28,408	22,370	2005-2012
Residuum	☐	1,541	2,163	1,091	-297	700	650	2005-2012
Motor Gasoline Blending Components (net)	☐	-355,807	-367,734	-367,561	-355,756	-357,231	-358,232	2005-2012
Reformulated	☐	-327,925	-323,862	-323,538	-315,331	-311,703	-312,510	2005-2012
Reformulated - RBOB	☐		-323,862	-323,538	-315,331	-311,703	-312,510	2008-2012
RBOB for Blending with Alcohol	☐	-327,925	-323,862	-323,538				2005-2009
RBOB for Blending with Ether	☐							2005-2005
Conventional	☐	-27,882	-43,872	-44,023	-40,425	-45,528	-45,722	2005-2012
CBOB	☐	-41,200	-49,724	-53,167	-47,785	-50,890	-48,166	2005-2012
Other	☐	13,318	5,852	9,144	7,360	5,362	2,444	2005-2012
Alaskan Crude Oil Receipts	☐	266,218	248,199	238,146	218,499	201,320	195,906	1986-2012

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: RBOB with Ether and RBOB with Alcohol are discontinued as of the January 2010 reporting period. "All Other Oxygenates" includes ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), and other aliphatic alcohols and ethers intended for motor gasoline blending (e.g., isopropyl ether (IPE) or n-propanol). Totals may not equal sum of components due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 9/27/2013
Next Release Date: 9/26/2014

PAD District Imports by Country of Origin

Product: Total Crude Oil and Products **Period/Unit:** Annual-Thousand Barrels

Country: All Countries

Download Series History | Definitions, Sources & Notes

Show Data By: ○ Product ◉ Import ○ Country Area	GraphClear	2007	2008	2009	2010	2011	2012	View History
East Coast (PADD 1)	☐	1,216,790	1,144,024	1,000,432	922,432	859,818	727,383	1981-2012
Midwest (PADD 2)	☐	593,021	604,870	559,719	541,439	604,817	670,834	1981-2012
Gulf Coast (PADD 3)	☐	2,443,023	2,364,813	2,161,671	2,254,145	2,129,181	1,905,552	1981-2012
Rocky Mountain (PADD 4)	☐	110,541	104,939	91,507	89,636	82,068	91,687	1981-2012
West Coast (PADD 5)	☐	552,582	508,348	453,781	496,881	498,326	483,396	1981-2012

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: *Countries listed under OPEC and non-OPEC are based on current affiliations. OPEC and non-OPEC totals are based on affiliations for the stated period of time which may differ from current affiliations. Indonesia withdrew from OPEC in January 2009, Angola joined OPEC in January 2007, Ecuador withdrew from OPEC in January 1993 and rejoined in November 2007, and Gabon withdrew from OPEC in July 1996. Crude oil and unfinished oils are reported by the PAD District in which they are processed; all other products are reported by the PAD District of entry. Crude oil includes imports for storage in the Stategic Petroleum Reserve. The Persian Gulf includes Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates. Totals may not equal sum of components due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 9/27/2013
Next Release Date: 9/26/2014

PAD District Imports by Country of Origin

Product: Unfinished Oils | **Period/Unit:** Annual-Thousand Barrels

Country: All Countries

Download Series History | Definitions, Sources & Notes

Show Data By: ○ Product ◉ Import ○ Country Area	GraphClear	2007	2008	2009	2010	2011	2012	View History
East Coast (PADD 1)	☐	61,494	63,367	49,092	32,272	32,246	41,037	1981-2012
Midwest (PADD 2)	☐	1,407	3,399	3,795	116	202		1981-2011
Gulf Coast (PADD 3)	☐	173,690	191,205	173,056	168,564	195,356	158,971	1981-2012
Rocky Mountain (PADD 4)	☐		7					1981-2008
West Coast (PADD 5)	☐	25,142	21,290	21,197	20,287	22,939	18,754	1981-2012

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Notes: *Countries listed under OPEC and non-OPEC are based on current affiliations. OPEC and non-OPEC totals are based on affiliations for the stated period of time which may differ from current affiliations. Indonesia withdrew from OPEC in January 2009, Angola joined OPEC in January 2007, Ecuador withdrew from OPEC in January 1993 and rejoined in November 2007, and Gabon withdrew from OPEC in July 1996. Crude oil and unfinished oils are reported by the PAD District in which they are processed; all other products are reported by the PAD District of entry. Crude oil includes imports for storage in the Stategic Petroleum Reserve. The Persian Gulf includes Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates. Totals may not equal sum of components due to independent rounding. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 9/27/2013
Next Release Date: 9/26/2014

Definitions, Sources and Explanatory Notes

Category:Petroleum Imports/Exports & Movements
Topic: PAD District Imports by Country of Origin

■Definitions

Key Terms	Definition
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.
Aviation Gasoline Blending Components	Naphthas which will be used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus. Oxygenates are reported as other hydrocarbons, hydrogen, and oxygenates.
Barrel	A unit of volume equal to 42 U.S. gallons.
Biomass-Based Diesel Fuel	Biodiesel and other renewable diesel fuel or diesel fuel blending components derived from biomass, but excluding renewable diesel fuel coprocessed with petroleum feedstocks.
Conventional Blendstock for Oxygenate Blending (CBOB)	Motor gasoline blending components intended for blending with oxygenates to produce finished conventional motor gasoline.
Conventional Gasoline	Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. Excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock.
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 with the oil, such as sulfur and various metals; • Drip gases, and liquid hydrocarbons produced from tar sands, 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.
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.
Finished Aviation Gasoline	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.
Finished Motor Gasoline	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.
Fuel Ethanol	An anhydrous denatured aliphatic alcohol intended for gasoline blending as described in Oxygenates definition.
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 was classified on EIA surveys as either reformulated or conventional based on emissions performance and the intended end use in data through the end of December 2009. Designation of GTAB as reformulated or conventional was discontinued beginning with data for January 2010. GTAB was reported as a single product beginning with data for January 2010. GTAB data for January 2010 and later months is presented as conventional motor gasoline blending components when reported as a subset of motor gasoline blending components.
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.
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.
Liquefied Petroleum Gases (LPG)	A group of hydrocarbon-based gases derived from crude oil refining or nautral gas fractionation. They include: ethane, ethylene, propane, propylene, normal butane, butylene, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.
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.
Motor 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 xylene). Excludes oxygenates (alcohols, ethers), butane, and pentanes plus.
MTBE (Methyl tertiary butyl ether)	An ether intended for gasoline blending as described in "Oxygenates."
Naphtha Less Than 401° F	A naphtha with a boiling range of less than 401° F that is intended for use as a petrochemical feedstock.
OPEC	An intergovernmental organization whose stated objective is to "coordinate and unify the petroleum policies of member countries." It was created at the Baghdad

(Organization of the Petroleum Exporting Countries)	Conference on September 10–14, 1960. Current members (with years of membership) include Algeria (1969–present), Angola (2007–present), Ecuador (1973–1992 and 2007–present), Iran (1960–present), Iraq (1960–present), Kuwait (1960–present), Libya (1962–present), Nigeria (1971–present), Qatar (1961–present), Saudi Arabia (1960–present), United Arab Emirates (1967–present), and Venezuela (1960–present). Countries no longer members of OPEC include Gabon (1975–1994) and Indonesia (1962–2008).
Other Oils Equal To or Greater Than 401° F	Oils with a boiling range equal to or greater than 401° F that are intended for use as a petrochemical feedstock.
Other Products	Includes aviation gasoline, aviation gasoline blending components, miscellaneous products, other hydrocarbons and oxygenates, pentanes plus, petroleum coke, and waxes.
Oxygenates	Substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend. 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 cosolvent 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.
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."
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. Description and maps of PAD Districts and Refining Districts.
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.
Reformulated Blendstock for Oxgenate Blending (RBOB)	Motor gasoline blending components intended for blending with oxygenates to produce finished reformulated motor gasoline.
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.
RBOB for Blending with	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.

Ether	
Reformulated Gasoline (RFG)	Finished motor 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. This category includes oxygenated fuels program reformulated gasoline (OPRG) but excludes reformulated gasoline blendstock for oxygenate blending (RBOB).
Renewable Fuels (Other)	Fuels and fuel blending components, except biomass-based diesel fuel, renewable diesel fuel, and fuel ethanol, produced from renewable biomass.
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 D396 and D975 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 powerplants. 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.
Road Oil	Any heavy petroleum oil, including residual asphaltic oil used as a dust pallative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.
Special Naphthas	Oils with a boiling range equal to or greater than 401° F that are intended for use as a petrochemical feedstock.
Sulfur	A yellowish nonmetallic element, sometimes known as "brimstone." It is present at various levels of concentration in many fossil fuels.
Wax	A solid or semi-solid material at 77 degrees Fahrenheit 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 80 (or 85) and 240 degrees Fahrenheit and a maximum oil content (ASTM D 3235) of 50 weight percent.

For definitions of related energy terms, refer to the EIA Energy Glossary.

■Sources

Energy Information Administration, Form EIA-814, "Monthly Imports Report".

- EIA Forms & Instructions .
- Background, Survey Methodology and Statistical Details .

■Explanatory Notes

- Countries listed under OPEC and non-OPEC are based on current affiliations. OPEC and non-OPEC averages are based on affiliations for the stated period of time which may differ from current affiliations. Angola joined OPEC in January 2007, Ecuador withdrew from OPEC in January 1993 and rejoined in November 2007, and Gabon withdrew from OPEC in July 1996.
- Crude oil and unfinished oils are reported by the PAD District in which they are processed; all other products are reported by the PAD District of entry.
- Crude oil includes imports for storage in the Stategic Petroleum Reserve.
- The Persian Gulf includes Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates.
- Totals may not equal sum of components due to independent rounding.