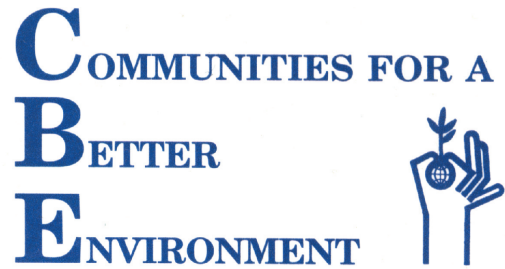


BY ELECTRONIC MAIL

6 June 2017

Jack Broadbent, Air Pollution Control Officer
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco CA 94105



Attention: Victor Douglas, Eric Stevenson, and Greg Nudd

**Supplemental Technical Comment on the Refinery Emission Caps Rule 12-16:
Additional Evidence Supporting the Effectiveness of GHG Limit “Caps”**

Mssrs. Broadbent, Douglas, Stevenson and Nudd,

Oil industry comments at the 31 May 2017 hearing suggested that preventing oil refinery emissions from increasing will restrict California fuel supplies, increasing fuel imports into California with their associated GHG emissions, and threatening existing refinery jobs. The industry comments ignore authoritative data that disprove these assertions. The data show statewide gasoline demand peaked in 2007, refiners here make far more fuel than California needs, and their excess production for export is a major—and growing—emitter now.

California refinery gasoline and diesel (distillate) production data reported by the State Energy Commission, and California gasoline and distillate diesel demand data reported by the State Bureau of Equalization, are appended hereto as Table KR-A. West Coast gasoline and distillate demand, import, and export data reported by the U.S. Energy Information Administration are appended hereto as Table KR-B. An estimate of emissions associated with refining for export, based on these data and emission factors from the Air Resources Board and peer reviewed literature, is appended hereto as Table KR-C.

California gasoline, West Coast gasoline, and West Coast distillate demand peaked in 2007 and, in each case, remains below its 12-month average peak level. Tables KR-A, KR-B.

Since its outsized hydrocracking capacity (Att. KR-2) allows the West Coast oil refining industry to “swing” between gasoline and distillate production, and its export markets buy more distillate than gasoline (Table KR-B), a proper supply/demand analysis should account for supply and demand of gasoline and distillate combined. California refinery production exceeded California demand for gasoline and distillate combined by 186,000–277,000 barrels per day, or 14–20 percent of total in-state production, from 2008 through February 2017. Table KR-A; 12-month rolling average. Bay Area refiners make more gasoline and distillate than their in-state market consumes, and sell the excess in other states and nations. *See* attachments KR-7, 8.

Supplemental Comment on Rule 12-16

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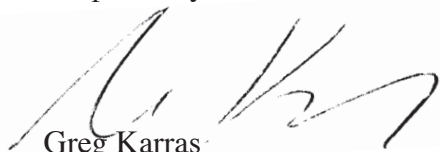
California refiners drive a West Coast-wide gasoline and diesel production excess, which is exported to other nations, thereby driving an enormous and increasing excess GHG footprint globally. The West Coast has been a net exporter of gasoline and distillate since 2008. *See* Table KR-B. Twelve-month average net exports from the West Coast increased to approximately 129,000 barrels/day in April 2014 for distillate and to approximately 53,600 barrels/day in January 2017 for gasoline. *Id.* West Coast exports of pet coke—a byproduct of refining lower quality oil—are cumulatively larger still, averaging approximately 110,000 barrels/day from 2006 to March 2017 and increasing by approximately 25,000 barrels/day on average after 2011. *Id.*

Estimated cumulative GHG emissions associated with this production for export total approximately 440 million metric tons of CO₂e from September 2008 through March 2017. *See* Table KR-C. This 440 megaton estimate represents only the emissions associated with making and burning those West Coast refinery products that were exported. *Id.* Annual emissions associated with these exports increased at an average rate of ≈ 3.59 percent/year during this period. *Id.* A significant portion ($> 11\%$) of these emissions was caused by the increased refinery fuel combustion and (especially) the increased coke by-production resulting from refining a relatively lower-quality, more carbon-intensive crude feed than the average U.S. crude feed. *See* also Att. KR-2.

Bay Area refiners exported most of the gasoline and distillate exported by California refiners in 2013 (Att. KR-8), exported more refined product as measured by dollar value than any other West Coast refining center in 2014 (Att. KR-7), and accounted for 96% of total California gasoline exports in the first eight months of 2016 (G. Schremp, 19 Oct. 2016 CEC presentation to BAAQMD).

These data demonstrate that excess production for export—the opposite of the shortage forcing net imports that the refiners falsely imply—is increasing emissions associated with Bay Area oil refining now. The data further show that from 2011–2015, a period when each covered facility emitted at levels below the proposed annual emission caps, statewide refinery production exceeded statewide motor fuels demand by 14–20 percent. These emission caps would not curtail California’s fuel supply or threaten existing refinery jobs, as the oil companies falsely assert.

Respectfully,



Greg Karras
Senior Scientist

Attachments: three tables

Table KR-A. California total gasoline and distillate/diesel production and demand data.

Sources:

(a) California Bureau of Equalization; www.boe.ca.gov/sptaxprog/spftrpts.htm(b) California Energy Commission; http://energy.ca.gov/almanac/petroleum_data/fuels_watch

b: barrel; 42 gallons

| Year | Month | Gasoline taxable sales ^a | | Diesel taxable sales ^a | | Refinery gasoline production ^b | | Refinery distillate production ^b | | Excess production (gasol+dist.) | |
|------|-----------|-------------------------------------|----------------|-----------------------------------|----------------|---|----------------|---|----------------|---------------------------------|----------------|
| | | (gallons) | (12-Mo av b/d) | (gallons) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (12-Mo av b/d) | (% production) |
| 2006 | January | 1,290,262,436 | | | | 1,025,151 | | 316,321 | | | |
| 2006 | February | 1,228,819,660 | | | | 1,117,101 | | 340,821 | | | |
| 2006 | March | 1,354,413,053 | | | | 1,055,883 | | 330,914 | | | |
| 2006 | April | 1,299,137,141 | | | | 1,094,070 | | 324,857 | | | |
| 2006 | May | 1,339,339,771 | | | | 1,144,603 | | 347,371 | | | |
| 2006 | June | 1,335,036,208 | | | | 1,139,128 | | 372,036 | | | |
| 2006 | July | 1,345,503,878 | | | | 1,089,054 | | 350,357 | | | |
| 2006 | August | 1,374,634,731 | | | | 1,133,241 | | 366,171 | | | |
| 2006 | September | 1,308,141,099 | | | | 1,094,604 | | 370,571 | | | |
| 2006 | October | 1,346,922,715 | | | | 1,142,698 | | 345,286 | | | |
| 2006 | November | 1,283,977,484 | | | | 1,122,634 | | 332,286 | | | |
| 2006 | December | 1,335,810,146 | 1,033,398 | | | 1,186,832 | 1,112,083 | 381,750 | 348,228 | | |
| 2007 | January | 1,298,885,664 | 1,033,961 | | | 1,037,978 | 1,113,152 | 289,486 | 345,992 | | |
| 2007 | February | 1,202,818,767 | 1,032,265 | | | 997,708 | 1,103,203 | 268,643 | 339,977 | | |
| 2007 | March | 1,357,822,002 | 1,032,487 | | | 968,824 | 1,095,948 | 294,286 | 336,925 | | |
| 2007 | April | 1,289,138,453 | 1,031,835 | | | 1,066,933 | 1,093,686 | 317,357 | 336,300 | | |
| 2007 | May | 1,350,460,982 | 1,032,560 | | | 1,140,210 | 1,093,320 | 362,886 | 337,593 | | |
| 2007 | June | 1,313,842,612 | 1,031,178 | | | 1,123,111 | 1,091,986 | 302,929 | 331,834 | | |
| 2007 | July | 1,332,676,853 | 1,030,341 | | | 1,148,270 | 1,096,920 | 332,543 | 330,350 | | |
| 2007 | August | 1,375,580,934 | 1,030,403 | | | 1,152,672 | 1,098,540 | 400,429 | 333,204 | | |
| 2007 | September | 1,283,184,069 | 1,028,775 | | | 1,126,629 | 1,101,208 | 386,357 | 334,520 | | |
| 2007 | October | 1,320,295,242 | 1,027,038 | | | 1,045,529 | 1,093,111 | 361,543 | 335,875 | | |
| 2007 | November | 1,249,323,308 | 1,024,777 | | | 1,072,289 | 1,088,915 | 375,929 | 339,512 | | |
| 2007 | December | 1,295,302,543 | 1,022,135 | | | 1,119,896 | 1,083,337 | 353,536 | 337,160 | | |
| 2008 | January | 1,234,472,901 | 1,017,933 | 234,700,260 | | 1,024,826 | 1,082,241 | 345,571 | 341,834 | | |
| 2008 | February | 1,282,275,797 | 1,023,116 | 223,985,934 | | 1,039,262 | 1,085,704 | 346,250 | 348,301 | | |
| 2008 | March | 1,309,507,897 | 1,019,965 | 241,439,734 | | 987,489 | 1,087,260 | 353,607 | 353,245 | | |
| 2008 | April | 1,257,478,243 | 1,017,900 | 230,152,121 | | 1,007,557 | 1,082,312 | 351,321 | 356,075 | | |
| 2008 | May | 1,283,632,210 | 1,013,540 | 225,272,249 | | 1,066,519 | 1,076,171 | 351,857 | 355,156 | | |
| 2008 | June | 1,214,526,818 | 1,007,062 | 260,434,744 | | 1,049,505 | 1,070,037 | 392,536 | 362,623 | | |
| 2008 | July | 1,257,415,374 | 1,002,152 | 243,095,395 | | 1,052,506 | 1,062,057 | 403,821 | 368,563 | | |
| 2008 | August | 1,259,535,970 | 994,583 | 234,022,307 | | 1,051,391 | 1,053,617 | 399,571 | 368,492 | | |
| 2008 | September | 1,218,721,221 | 990,378 | 254,394,579 | | 1,080,509 | 1,049,773 | 395,607 | 369,262 | | |
| 2008 | October | 1,251,514,350 | 985,891 | 252,471,983 | | 1,030,140 | 1,048,491 | 398,543 | 372,346 | | |
| 2008 | November | 1,197,991,322 | 982,542 | 204,150,018 | | 1,074,022 | 1,048,635 | 387,393 | 373,301 | | |
| 2008 | December | 1,265,157,860 | 980,576 | 223,406,881 | 184,444 | 995,943 | 1,038,306 | 344,714 | 372,566 | 245,852 | 17% |
| 2009 | January | 1,212,487,451 | 979,142 | 197,283,143 | 182,003 | 949,844 | 1,032,057 | 328,607 | 371,152 | 242,064 | 17% |
| 2009 | February | 1,121,912,239 | 968,681 | 181,765,826 | 179,249 | 991,041 | 1,028,039 | 337,750 | 370,444 | 250,553 | 18% |
| 2009 | March | 1,279,318,383 | 966,712 | 240,173,563 | 179,167 | 1,034,834 | 1,031,984 | 318,143 | 367,489 | 253,595 | 18% |
| 2009 | April | 1,247,536,585 | 966,063 | 219,920,756 | 178,499 | 1,067,541 | 1,036,983 | 339,607 | 366,512 | 258,933 | 18% |
| 2009 | May | 1,291,314,554 | 966,564 | 209,471,285 | 177,468 | 1,100,758 | 1,039,836 | 342,686 | 365,748 | 261,552 | 19% |
| 2009 | June | 1,233,792,786 | 967,821 | 223,555,180 | 175,063 | 1,118,108 | 1,045,553 | 346,214 | 361,888 | 264,557 | 19% |

Table KR–A. California total gasoline and distillate/diesel production and demand data—continued

Sources:

(a) California Bureau of Equalization; www.boe.ca.gov/sptaxprog/spftrpts.htm(b) California Energy Commission; http://energy.ca.gov/almanac/petroleum_data/fuels_watch*b: barrel; 42 gallons*

| Year | Month | Gasoline taxable sales ^a | | Diesel taxable sales ^a | | Refinery gasoline production ^b | | Refinery distillate production ^b | | Excess production (gasol+dist.) | |
|------|-----------|-------------------------------------|----------------|-----------------------------------|----------------|---|----------------|---|----------------|---------------------------------|----------------|
| | | (gallons) | (12-Mo av b/d) | (gallons) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (12-Mo av b/d) | (% production) |
| 2009 | July | 1,284,485,838 | 969,587 | 215,772,974 | 173,280 | 1,069,881 | 1,047,001 | 325,829 | 355,389 | 259,522 | 19% |
| 2009 | August | 1,267,878,839 | 970,131 | 193,949,828 | 170,666 | 1,076,315 | 1,049,078 | 294,679 | 346,648 | 254,928 | 18% |
| 2009 | September | 1,219,279,786 | 970,168 | 244,412,169 | 170,015 | 1,075,769 | 1,048,683 | 322,393 | 340,547 | 249,047 | 18% |
| 2009 | October | 1,245,985,450 | 969,807 | 224,450,417 | 168,187 | 1,044,712 | 1,049,897 | 315,343 | 333,613 | 245,516 | 18% |
| 2009 | November | 1,170,268,541 | 967,999 | 197,664,779 | 167,764 | 1,023,089 | 1,045,653 | 305,179 | 326,762 | 236,652 | 17% |
| 2009 | December | 1,237,021,075 | 966,163 | 231,720,029 | 168,307 | 975,241 | 1,043,928 | 310,786 | 323,935 | 233,393 | 17% |
| 2010 | January | 1,172,751,145 | 963,571 | 188,705,030 | 167,747 | 1,046,139 | 1,051,952 | 264,250 | 318,572 | 239,206 | 17% |
| 2010 | February | 1,130,899,111 | 964,157 | 195,563,666 | 168,647 | 1,017,582 | 1,054,164 | 265,821 | 312,578 | 233,937 | 17% |
| 2010 | March | 1,272,640,468 | 963,722 | 234,903,120 | 168,303 | 1,073,491 | 1,057,386 | 299,143 | 310,994 | 236,355 | 17% |
| 2010 | April | 1,254,775,791 | 964,194 | 204,318,970 | 167,286 | 1,094,529 | 1,059,635 | 352,250 | 312,048 | 240,203 | 18% |
| 2010 | May | 1,289,885,802 | 964,101 | 205,110,704 | 167,001 | 1,067,586 | 1,056,870 | 395,000 | 316,407 | 242,176 | 18% |
| 2010 | June | 1,255,432,005 | 965,512 | 251,256,188 | 168,808 | 1,087,229 | 1,054,297 | 378,393 | 319,089 | 239,065 | 17% |
| 2010 | July | 1,273,677,743 | 964,807 | 219,318,120 | 169,039 | 1,091,723 | 1,056,117 | 347,257 | 320,875 | 243,145 | 18% |
| 2010 | August | 1,291,164,966 | 966,326 | 205,138,797 | 169,769 | 1,117,397 | 1,059,541 | 320,086 | 322,992 | 246,437 | 18% |
| 2010 | September | 1,237,725,377 | 967,530 | 244,810,944 | 169,795 | 1,084,861 | 1,060,298 | 355,000 | 325,709 | 248,683 | 18% |
| 2010 | October | 1,256,958,886 | 968,245 | 215,881,238 | 169,236 | 974,050 | 1,054,410 | 359,571 | 329,395 | 246,323 | 18% |
| 2010 | November | 1,200,852,654 | 970,240 | 207,283,073 | 169,864 | 1,004,009 | 1,052,820 | 342,371 | 332,494 | 245,210 | 18% |
| 2010 | December | 1,232,128,839 | 969,921 | 218,365,238 | 168,993 | 1,085,586 | 1,062,015 | 357,964 | 336,426 | 259,527 | 19% |
| 2011 | January | 1,204,096,468 | 971,966 | 191,265,324 | 169,160 | 1,048,650 | 1,062,224 | 327,643 | 341,708 | 262,807 | 19% |
| 2011 | February | 1,131,200,286 | 971,986 | 176,452,952 | 167,913 | 983,293 | 1,059,367 | 292,429 | 343,926 | 263,394 | 19% |
| 2011 | March | 1,237,807,877 | 969,713 | 218,708,007 | 166,856 | 1,007,726 | 1,053,887 | 343,771 | 347,645 | 264,961 | 19% |
| 2011 | April | 1,204,833,929 | 966,456 | 210,355,533 | 167,250 | 1,056,725 | 1,050,736 | 335,857 | 346,279 | 263,309 | 19% |
| 2011 | May | 1,237,497,276 | 963,038 | 213,094,669 | 167,771 | 1,056,054 | 1,049,775 | 323,914 | 340,355 | 259,321 | 19% |
| 2011 | June | 1,220,789,762 | 960,778 | 243,344,006 | 167,255 | 1,075,368 | 1,048,787 | 344,107 | 337,498 | 258,251 | 19% |
| 2011 | July | 1,245,916,412 | 958,968 | 223,447,912 | 167,524 | 1,073,618 | 1,047,278 | 407,464 | 342,515 | 263,301 | 19% |
| 2011 | August | 1,269,658,460 | 957,565 | 227,911,450 | 169,010 | 1,100,109 | 1,045,837 | 360,600 | 345,891 | 265,154 | 19% |
| 2011 | September | 1,211,495,250 | 955,854 | 261,926,745 | 170,126 | 1,081,393 | 1,045,548 | 351,143 | 345,570 | 265,138 | 19% |
| 2011 | October | 1,233,852,207 | 954,346 | 226,187,671 | 170,799 | 1,035,411 | 1,050,662 | 340,250 | 343,959 | 269,476 | 19% |
| 2011 | November | 1,169,249,871 | 952,285 | 196,225,303 | 170,077 | 1,018,100 | 1,051,836 | 353,171 | 344,859 | 274,333 | 20% |
| 2011 | December | 1,233,735,965 | 952,390 | 233,614,553 | 171,072 | 964,775 | 1,041,769 | 351,036 | 344,282 | 262,589 | 19% |
| 2012 | January | 1,165,769,473 | 949,890 | 181,003,409 | 170,403 | 975,903 | 1,035,706 | 318,343 | 343,507 | 258,921 | 19% |
| 2012 | February | 1,154,582,904 | 951,415 | 184,093,977 | 170,901 | 982,439 | 1,035,635 | 278,036 | 342,308 | 255,627 | 19% |
| 2012 | March | 1,237,090,205 | 951,368 | 231,409,056 | 171,730 | 1,051,143 | 1,039,253 | 349,214 | 342,761 | 258,917 | 19% |
| 2012 | April | 1,183,756,696 | 949,993 | 197,559,932 | 170,895 | 1,051,111 | 1,038,785 | 315,286 | 341,047 | 258,944 | 19% |
| 2012 | May | 1,277,903,245 | 952,629 | 228,146,495 | 171,877 | 1,120,906 | 1,044,190 | 323,486 | 341,011 | 260,695 | 19% |
| 2012 | June | 1,230,283,199 | 953,248 | 250,024,610 | 172,313 | 1,115,625 | 1,047,544 | 367,536 | 342,964 | 264,948 | 19% |
| 2012 | July | 1,230,261,987 | 952,227 | 217,801,078 | 171,944 | 1,048,740 | 1,045,471 | 387,714 | 341,318 | 262,618 | 19% |
| 2012 | August | 1,255,713,656 | 951,317 | 223,131,870 | 171,632 | 1,049,850 | 1,041,283 | 328,929 | 338,679 | 257,012 | 19% |
| 2012 | September | 1,194,012,527 | 950,177 | 237,216,063 | 170,020 | 1,039,207 | 1,037,768 | 370,321 | 340,277 | 257,847 | 19% |
| 2012 | October | 1,220,857,664 | 949,329 | 234,650,829 | 170,573 | 1,052,294 | 1,039,174 | 345,543 | 340,718 | 259,991 | 19% |
| 2012 | November | 1,162,560,411 | 948,893 | 191,711,268 | 170,278 | 1,009,146 | 1,038,428 | 332,536 | 338,998 | 258,256 | 19% |
| 2012 | December | 1,192,002,207 | 946,171 | 226,797,044 | 169,833 | 1,037,604 | 1,044,497 | 341,071 | 338,168 | 266,661 | 19% |

Table KR–A. California total gasoline and distillate/diesel production and demand data—continued

Sources:

(a) California Bureau of Equalization; www.boe.ca.gov/sptaxprog/spftrpts.htm(b) California Energy Commission; http://energy.ca.gov/almanac/petroleum_data/fuels_watch*b: barrel; 42 gallons*

| Year | Month | Gasoline taxable sales ^a | | Diesel taxable sales ^a | | Refinery gasoline production ^b | | Refinery distillate production ^b | | Excess production (gasol+dist.) | |
|------|-----------|-------------------------------------|----------------|-----------------------------------|----------------|---|----------------|---|----------------|---------------------------------|----------------|
| | | (gallons) | (12-Mo av b/d) | (gallons) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (12-Mo av b/d) | (% production) |
| 2013 | January | 1,169,694,474 | 946,427 | 196,055,634 | 170,815 | 925,926 | 1,040,333 | 293,229 | 336,075 | 259,166 | 19% |
| 2013 | February | 1,097,679,113 | 942,715 | 184,893,748 | 170,867 | 878,436 | 1,031,666 | 314,714 | 339,132 | 257,215 | 19% |
| 2013 | March | 1,237,136,829 | 942,718 | 240,932,088 | 171,489 | 919,836 | 1,020,723 | 338,893 | 338,272 | 244,789 | 18% |
| 2013 | April | 1,207,530,235 | 944,268 | 208,511,279 | 172,203 | 983,546 | 1,015,093 | 337,571 | 340,129 | 238,750 | 18% |
| 2013 | May | 1,259,306,999 | 943,055 | 232,587,197 | 172,493 | 1,078,368 | 1,011,548 | 382,571 | 345,052 | 241,052 | 18% |
| 2013 | June | 1,216,894,566 | 942,182 | 254,803,659 | 172,804 | 1,096,057 | 1,009,918 | 360,500 | 344,466 | 239,397 | 18% |
| 2013 | July | 1,241,703,883 | 942,928 | 220,516,843 | 172,982 | 1,103,940 | 1,014,518 | 361,229 | 342,259 | 240,866 | 18% |
| 2013 | August | 1,275,028,439 | 944,188 | 239,921,789 | 174,077 | 1,043,543 | 1,013,992 | 383,071 | 346,771 | 242,498 | 18% |
| 2013 | September | 1,196,126,013 | 944,326 | 255,249,242 | 175,253 | 986,768 | 1,009,622 | 376,536 | 347,289 | 237,331 | 17% |
| 2013 | October | 1,242,839,671 | 945,760 | 238,359,920 | 175,495 | 1,018,563 | 1,006,811 | 388,543 | 350,872 | 236,428 | 17% |
| 2013 | November | 1,172,066,456 | 946,380 | 209,293,623 | 176,642 | 1,024,361 | 1,008,079 | 353,571 | 352,625 | 237,682 | 17% |
| 2013 | December | 1,216,937,753 | 948,007 | 259,180,630 | 178,754 | 1,032,503 | 1,007,654 | 419,057 | 359,124 | 240,016 | 18% |
| 2014 | January | 1,174,580,507 | 948,326 | 201,991,138 | 179,142 | 1,041,050 | 1,017,248 | 369,393 | 365,471 | 255,251 | 18% |
| 2014 | February | 1,107,924,666 | 948,994 | 187,594,207 | 179,318 | 938,600 | 1,022,261 | 353,929 | 368,739 | 262,688 | 19% |
| 2014 | March | 1,246,115,090 | 949,580 | 231,193,811 | 178,683 | 967,239 | 1,026,212 | 398,464 | 373,703 | 271,652 | 19% |
| 2014 | April | 1,210,319,338 | 949,761 | 214,171,368 | 179,052 | 1,003,046 | 1,027,837 | 385,400 | 377,689 | 276,712 | 20% |
| 2014 | May | 1,272,686,261 | 950,634 | 231,099,276 | 178,955 | 1,031,671 | 1,023,945 | 372,179 | 376,823 | 271,179 | 19% |
| 2014 | June | 1,217,309,896 | 950,661 | 253,209,845 | 178,851 | 1,058,229 | 1,020,793 | 341,786 | 375,263 | 266,544 | 19% |
| 2014 | July | 1,250,901,273 | 951,261 | 242,734,702 | 180,300 | 1,035,343 | 1,015,076 | 369,686 | 375,968 | 259,483 | 19% |
| 2014 | August | 1,285,170,048 | 951,923 | 239,718,243 | 180,287 | 1,094,239 | 1,019,301 | 367,464 | 374,667 | 261,759 | 19% |
| 2014 | September | 1,222,879,913 | 953,668 | 264,722,388 | 180,905 | 1,085,566 | 1,027,534 | 364,714 | 373,682 | 266,644 | 19% |
| 2014 | October | 1,271,773,798 | 955,555 | 246,623,042 | 181,444 | 1,052,650 | 1,030,375 | 352,321 | 370,664 | 264,039 | 19% |
| 2014 | November | 1,194,414,902 | 957,013 | 209,521,386 | 181,459 | 1,104,414 | 1,037,046 | 411,036 | 375,452 | 274,026 | 19% |
| 2014 | December | 1,248,556,730 | 959,076 | 253,600,951 | 181,095 | 1,123,103 | 1,044,596 | 390,800 | 373,098 | 277,523 | 20% |
| 2015 | January | 1,216,497,576 | 961,810 | 197,537,337 | 180,804 | 948,468 | 1,036,881 | 365,036 | 372,735 | 267,001 | 19% |
| 2015 | February | 1,148,447,060 | 964,453 | 193,779,164 | 181,208 | 990,436 | 1,041,200 | 310,036 | 369,077 | 264,616 | 19% |
| 2015 | March | 1,287,581,812 | 967,158 | 263,113,370 | 183,290 | 999,251 | 1,043,868 | 342,286 | 364,395 | 257,815 | 18% |
| 2015 | April | 1,254,633,595 | 970,049 | 220,397,637 | 183,696 | 1,069,311 | 1,049,390 | 368,071 | 362,951 | 258,596 | 18% |
| 2015 | May | 1,278,463,759 | 970,426 | 220,949,857 | 183,034 | 1,015,957 | 1,048,081 | 342,643 | 360,490 | 255,111 | 18% |
| 2015 | June | 1,262,121,393 | 973,349 | 257,066,137 | 183,285 | 1,031,389 | 1,045,844 | 349,343 | 361,120 | 250,329 | 18% |
| 2015 | July | 1,279,082,202 | 975,187 | 240,176,558 | 183,118 | 1,076,132 | 1,049,243 | 343,714 | 358,955 | 249,892 | 18% |
| 2015 | August | 1,315,596,270 | 977,172 | 246,344,768 | 183,551 | 998,904 | 1,041,298 | 347,179 | 357,265 | 237,840 | 17% |
| 2015 | September | 1,264,298,745 | 979,874 | 270,451,396 | 183,924 | 1,099,946 | 1,042,497 | 380,914 | 358,615 | 237,313 | 17% |
| 2015 | October | 1,303,962,044 | 981,974 | 246,699,175 | 183,929 | 942,625 | 1,033,328 | 325,000 | 356,338 | 223,763 | 16% |
| 2015 | November | 1,224,602,888 | 983,943 | 218,883,579 | 184,540 | 992,882 | 1,024,034 | 350,357 | 351,282 | 206,832 | 15% |
| 2015 | December | 1,270,061,496 | 985,346 | 249,260,828 | 184,257 | 1,003,150 | 1,014,038 | 355,929 | 348,376 | 192,811 | 14% |
| 2016 | January | 1,221,372,599 | 985,664 | 217,753,398 | 185,576 | 993,595 | 1,017,798 | 294,905 | 342,531 | 189,090 | 14% |
| 2016 | February | 1,224,425,194 | 990,620 | 212,731,245 | 186,812 | 1,015,754 | 1,019,908 | 345,429 | 345,481 | 187,957 | 14% |
| 2016 | March | 1,300,298,942 | 991,449 | 267,381,356 | 187,090 | 1,000,820 | 1,020,039 | 357,543 | 346,752 | 188,251 | 14% |
| 2016 | April | 1,274,448,751 | 992,742 | 248,059,116 | 188,895 | 1,097,261 | 1,022,368 | 354,000 | 345,580 | 186,311 | 14% |
| 2016 | May | 1,323,331,105 | 995,669 | 216,937,963 | 188,633 | 1,124,309 | 1,031,397 | 350,486 | 346,233 | 193,329 | 14% |
| 2016 | June | 1,295,550,673 | 997,849 | 273,005,811 | 189,673 | 1,101,693 | 1,037,256 | 357,250 | 346,892 | 196,626 | 14% |

Table KR-A. California total gasoline and distillate/diesel production and demand data—continued

Sources:

(a) California Bureau of Equilization; www.boe.ca.gov/sptaxprog/spftrpts.htm(b) California Energy Commission; http://energy.ca.gov/almanac/petroleum_data/fuels_watch*b: barrel; 42 gallons*

| Year | Month | Gasoline taxable sales ^a | | Diesel taxable sales ^a | | Refinery gasoline production ^b | | Refinery distillate production ^b | | Excess production (gasol+dist.) | |
|------|-----------|-------------------------------------|----------------|-----------------------------------|----------------|---|----------------|---|----------------|---------------------------------|----------------|
| | | (gallons) | (12-Mo av b/d) | (gallons) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (b/day) | (12-Mo av b/d) | (12-Mo av b/d) | (% production) |
| 2016 | July | 1,331,548,556 | 1,001,272 | 251,724,789 | 190,426 | 1,119,525 | 1,040,872 | 376,000 | 349,583 | 198,757 | 14% |
| 2016 | August | 1,363,294,300 | 1,004,383 | 269,281,410 | 191,922 | 1,165,814 | 1,054,781 | 409,657 | 354,789 | 213,265 | 15% |
| 2016 | September | 1,288,772,790 | 1,005,980 | 292,758,016 | 193,377 | 1,056,229 | 1,051,138 | 377,107 | 354,472 | 206,253 | 15% |
| 2016 | October | 1,318,576,424 | 1,006,933 | 254,148,157 | 193,863 | 1,073,846 | 1,062,073 | 275,607 | 350,356 | 211,633 | 15% |
| 2016 | November | 1,251,416,220 | 1,008,682 | 234,619,758 | 194,890 | 1,076,809 | 1,069,067 | 357,000 | 350,909 | 216,404 | 15% |
| 2016 | December | 1,294,921,318 | 1,010,304 | 266,869,607 | 196,039 | 1,088,293 | 1,076,162 | 347,714 | 350,225 | 220,045 | 15% |
| 2017 | January | 1,228,865,654 | 1,010,793 | 211,288,592 | 195,617 | 1,077,821 | 1,083,181 | 353,821 | 355,135 | 231,906 | 16% |
| 2017 | February | 1,161,081,695 | 1,006,661 | 208,211,775 | 195,322 | 1,047,214 | 1,085,803 | 312,250 | 352,370 | 236,190 | 16% |

Table KR-B. West Coast (PADD 5) finished gasoline, distillate, and petroleum coke demand, import, and export data.

b: barrel; 42 gallons

Source US Energy Information Administration; http://www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbldpd_m_cur.htm

| Year | Month | Product supplied (gasoline) | | Product supplied (distillate) | | Gasoline imports / exports | | Distillate imports / exports | | Pet coke imports / exports | | Net exports (12-Mo av, in b/d) | | |
|------|-----------|-----------------------------|----------------|-------------------------------|----------------|----------------------------|---------------|------------------------------|---------------|----------------------------|---------------|--------------------------------|------------|----------|
| | | (b/d) | (12-Mo av b/d) | (b/d) | (12-MO av b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Gasoline | Distillate | Pet coke |
| 2006 | January | 1,547,000 | | 522,000 | | 9,000 | 9,000 | 3,000 | 36,000 | 1,000 | 114,000 | | | |
| 2006 | February | 1,599,000 | | 520,000 | | 9,000 | 14,000 | 14,000 | 27,000 | 1,000 | 172,000 | | | |
| 2006 | March | 1,631,000 | | 572,000 | | 21,000 | 5,000 | 37,000 | 20,000 | 1,000 | 75,000 | | | |
| 2006 | April | 1,617,000 | | 538,000 | | 28,000 | 5,000 | 59,000 | 46,000 | 0 | 110,000 | | | |
| 2006 | May | 1,614,000 | | 596,000 | | 53,000 | 18,000 | 28,000 | 26,000 | 1,000 | 93,000 | | | |
| 2006 | June | 1,703,000 | | 575,000 | | 29,000 | 13,000 | 36,000 | 29,000 | 0 | 140,000 | | | |
| 2006 | July | 1,714,000 | | 620,000 | | 14,000 | 8,000 | 53,000 | 25,000 | 0 | 74,000 | | | |
| 2006 | August | 1,662,000 | | 615,000 | | 56,000 | 0 | 24,000 | 31,000 | 1,000 | 94,000 | | | |
| 2006 | September | 1,655,000 | | 610,000 | | 13,000 | 0 | 69,000 | 36,000 | 1,000 | 85,000 | | | |
| 2006 | October | 1,615,000 | | 592,000 | | 19,000 | 2,000 | 14,000 | 24,000 | 0 | 100,000 | | | |
| 2006 | November | 1,634,000 | | 586,000 | | 5,000 | 4,000 | 19,000 | 17,000 | 1,000 | 92,000 | | | |
| 2006 | December | 1,610,000 | 1,633,417 | 519,000 | 572,083 | 0 | 0 | 34,000 | 5,000 | 1,000 | 81,000 | -14,833 | -5,667 | 101,833 |
| 2007 | January | 1,602,000 | 1,638,000 | 557,000 | 575,000 | 22,000 | 0 | 21,000 | 3,000 | 1,000 | 99,000 | -16,667 | -9,917 | 100,583 |
| 2007 | February | 1,573,000 | 1,635,833 | 522,000 | 575,167 | 56,000 | 3,000 | 54,000 | 25,000 | 1,000 | 71,000 | -21,500 | -13,417 | 92,167 |
| 2007 | March | 1,590,000 | 1,632,417 | 556,000 | 573,833 | 48,000 | 0 | 68,000 | 14,000 | 1,000 | 59,000 | -24,167 | -16,500 | 90,833 |
| 2007 | April | 1,674,000 | 1,637,167 | 599,000 | 578,917 | 33,000 | 3,000 | 58,000 | 15,000 | 1,000 | 96,000 | -24,750 | -19,000 | 89,583 |
| 2007 | May | 1,684,000 | 1,643,000 | 590,000 | 578,417 | 79,000 | 3,000 | 22,000 | 33,000 | 1,000 | 114,000 | -28,167 | -17,917 | 91,333 |
| 2007 | June | 1,642,000 | 1,637,917 | 589,000 | 579,583 | 42,000 | 7,000 | 30,000 | 44,000 | 1,000 | 81,000 | -29,750 | -16,167 | 86,333 |
| 2007 | July | 1,662,000 | 1,633,583 | 593,000 | 577,333 | 20,000 | 5,000 | 60,000 | 29,000 | 0 | 99,000 | -30,500 | -16,417 | 88,417 |
| 2007 | August | 1,726,000 | 1,638,917 | 617,000 | 577,500 | 46,000 | 4,000 | 42,000 | 37,000 | 1,000 | 75,000 | -29,333 | -17,417 | 86,833 |
| 2007 | September | 1,627,000 | 1,636,583 | 566,000 | 573,833 | 26,000 | 12,000 | 10,000 | 45,000 | 1,000 | 50,000 | -29,417 | -11,750 | 83,917 |
| 2007 | October | 1,563,000 | 1,632,250 | 594,000 | 574,000 | 3,000 | 10,000 | 22,000 | 23,000 | 1,000 | 72,000 | -27,417 | -12,500 | 81,500 |
| 2007 | November | 1,606,000 | 1,629,917 | 506,000 | 567,333 | 23,000 | 0 | 1,000 | 47,000 | 1,000 | 98,000 | -29,250 | -8,500 | 82,000 |
| 2007 | December | 1,559,000 | 1,625,667 | 483,000 | 564,333 | 9,000 | 0 | 9,000 | 75,000 | 1,000 | 51,000 | -30,000 | -583 | 79,500 |
| 2008 | January | 1,478,000 | 1,615,333 | 509,000 | 560,333 | 14,000 | 13,000 | 15,000 | 53,000 | 1,000 | 78,000 | -28,250 | 4,083 | 77,750 |
| 2008 | February | 1,571,000 | 1,615,167 | 505,000 | 558,917 | 23,000 | 49,000 | 1,000 | 111,000 | 1,000 | 62,000 | -21,667 | 15,667 | 77,000 |
| 2008 | March | 1,612,000 | 1,617,000 | 505,000 | 554,667 | 21,000 | 12,000 | 2,000 | 94,000 | 1,000 | 87,000 | -18,417 | 27,833 | 79,333 |
| 2008 | April | 1,570,000 | 1,608,333 | 505,000 | 546,833 | 20,000 | 32,000 | 12,000 | 88,000 | 0 | 81,000 | -14,917 | 37,750 | 78,167 |
| 2008 | May | 1,582,000 | 1,599,833 | 550,000 | 543,500 | 27,000 | 34,000 | 14,000 | 43,000 | 1,000 | 79,000 | -8,000 | 39,250 | 75,250 |
| 2008 | June | 1,623,000 | 1,598,250 | 540,000 | 539,417 | 19,000 | 9,000 | 1,000 | 95,000 | 1,000 | 107,000 | -5,917 | 45,917 | 77,417 |
| 2008 | July | 1,641,000 | 1,596,500 | 536,000 | 534,667 | 23,000 | 18,000 | 23,000 | 92,000 | 1,000 | 85,000 | -5,083 | 54,250 | 76,167 |
| 2008 | August | 1,647,000 | 1,589,917 | 530,000 | 527,417 | 30,000 | 26,000 | 1,000 | 116,000 | 1,000 | 99,000 | -1,917 | 64,250 | 78,167 |
| 2008 | September | 1,565,000 | 1,584,750 | 589,000 | 529,333 | 5,000 | 35,000 | 17,000 | 87,000 | 1,000 | 97,000 | 1,750 | 67,167 | 82,083 |
| 2008 | October | 1,544,000 | 1,583,167 | 605,000 | 530,250 | 3,000 | 39,000 | 1,000 | 57,000 | 1,000 | 86,000 | 4,167 | 71,750 | 83,250 |
| 2008 | November | 1,549,000 | 1,578,417 | 473,000 | 527,500 | 3,000 | 27,000 | 12,000 | 68,000 | 1,000 | 116,000 | 8,083 | 72,583 | 84,750 |
| 2008 | December | 1,515,000 | 1,574,750 | 443,000 | 524,167 | 0 | 40,000 | 4,000 | 152,000 | 1,000 | 98,000 | 12,167 | 79,417 | 88,667 |
| 2009 | January | 1,401,000 | 1,568,333 | 420,000 | 516,750 | 23,000 | 18,000 | 11,000 | 140,000 | 1,000 | 123,000 | 11,833 | 87,000 | 92,417 |
| 2009 | February | 1,420,000 | 1,555,750 | 456,000 | 512,667 | 23,000 | 33,000 | 8,000 | 92,000 | 2,000 | 153,000 | 10,500 | 84,833 | 99,917 |
| 2009 | March | 1,544,000 | 1,550,083 | 465,000 | 509,333 | 34,000 | 17,000 | 1,000 | 103,000 | 1,000 | 131,000 | 9,833 | 85,667 | 103,583 |
| 2009 | April | 1,580,000 | 1,550,917 | 478,000 | 507,083 | 23,000 | 30,000 | 13,000 | 93,000 | 0 | 111,000 | 9,417 | 86,000 | 106,083 |
| 2009 | May | 1,558,000 | 1,548,917 | 481,000 | 501,333 | 17,000 | 30,000 | 24,000 | 59,000 | 1,000 | 79,000 | 9,917 | 86,500 | 106,083 |
| 2009 | June | 1,610,000 | 1,547,833 | 516,000 | 499,333 | 13,000 | 6,000 | 19,000 | 45,000 | 1,000 | 98,000 | 10,167 | 80,833 | 105,333 |
| 2009 | July | 1,599,000 | 1,544,333 | 527,000 | 498,583 | 15,000 | 30,000 | 13,000 | 21,000 | 1,000 | 147,000 | 11,833 | 75,750 | 110,500 |
| 2009 | August | 1,559,000 | 1,537,000 | 487,000 | 495,000 | 18,000 | 27,000 | 8,000 | 64,000 | 1,000 | 116,000 | 12,917 | 70,833 | 111,917 |

Table KR-B. West Coast (PADD 5) finished gasoline, distillate, and petroleum coke demand, import, and export data—continued

b: barrel; 42 gallons

Source US Energy Information Administration; http://www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbldpd_m_cur.htm

| Year | Month | Product supplied (gasoline) | | Product supplied (distillate) | | Gasoline imports / exports | | Distillate imports / exports | | Pet coke imports / exports | | Net exports (12-Mo av, in b/d) | | |
|------|-----------|-----------------------------|----------------|-------------------------------|----------------|----------------------------|---------------|------------------------------|---------------|----------------------------|---------------|--------------------------------|------------|----------|
| | | (b/d) | (12-Mo av b/d) | (b/d) | (12-Mo av b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Gasoline | Distillate | Pet coke |
| 2009 | September | 1,538,000 | 1,534,750 | 503,000 | 487,833 | 21,000 | 43,000 | 33,000 | 29,000 | 1,000 | 100,000 | 12,250 | 64,667 | 112,167 |
| 2009 | October | 1,521,000 | 1,532,833 | 452,000 | 475,083 | 14,000 | 21,000 | 21,000 | 60,000 | 1,000 | 92,000 | 9,833 | 63,250 | 112,667 |
| 2009 | November | 1,500,000 | 1,528,750 | 482,000 | 475,833 | 3,000 | 43,000 | 6,000 | 52,000 | 1,000 | 107,000 | 11,167 | 62,417 | 111,917 |
| 2009 | December | 1,503,000 | 1,527,750 | 447,000 | 476,167 | 14,000 | 47,000 | 5,000 | 49,000 | 1,000 | 100,000 | 10,583 | 53,750 | 112,083 |
| 2010 | January | 1,467,000 | 1,533,250 | 429,000 | 476,917 | 9,000 | 37,000 | 14,000 | 67,000 | 1,000 | 144,000 | 13,333 | 47,417 | 113,833 |
| 2010 | February | 1,462,000 | 1,536,750 | 447,000 | 476,167 | 17,000 | 62,000 | 7,000 | 75,000 | 1,000 | 77,000 | 16,250 | 46,083 | 107,583 |
| 2010 | March | 1,568,000 | 1,538,750 | 495,000 | 478,667 | 11,000 | 80,000 | 6,000 | 29,000 | 1,000 | 94,000 | 23,417 | 39,500 | 104,500 |
| 2010 | April | 1,559,000 | 1,537,000 | 484,000 | 479,167 | 21,000 | 37,000 | 11,000 | 52,000 | 1,000 | 106,000 | 24,167 | 36,250 | 104,000 |
| 2010 | May | 1,569,000 | 1,537,917 | 515,000 | 482,000 | 17,000 | 42,000 | 6,000 | 37,000 | 1,000 | 136,000 | 25,167 | 35,917 | 108,750 |
| 2010 | June | 1,564,000 | 1,534,083 | 494,000 | 480,167 | 11,000 | 35,000 | 3,000 | 48,000 | 1,000 | 103,000 | 27,750 | 37,500 | 109,167 |
| 2010 | July | 1,562,000 | 1,531,000 | 519,000 | 479,500 | 8,000 | 24,000 | 12,000 | 21,000 | 1,000 | 102,000 | 27,833 | 37,583 | 105,417 |
| 2010 | August | 1,542,000 | 1,529,583 | 537,000 | 483,667 | 29,000 | 9,000 | 23,000 | 28,000 | 1,000 | 124,000 | 25,417 | 33,333 | 106,083 |
| 2010 | September | 1,589,000 | 1,533,833 | 511,000 | 484,333 | 23,000 | 27,000 | 17,000 | 47,000 | 0 | 109,000 | 23,917 | 36,167 | 106,917 |
| 2010 | October | 1,522,000 | 1,533,917 | 508,000 | 489,000 | 3,000 | 41,000 | 3,000 | 53,000 | 1,000 | 103,000 | 26,500 | 37,083 | 107,833 |
| 2010 | November | 1,487,000 | 1,532,833 | 488,000 | 489,500 | 14,000 | 30,000 | 3,000 | 37,000 | 1,000 | 127,000 | 24,500 | 36,083 | 109,500 |
| 2010 | December | 1,462,000 | 1,529,417 | 460,000 | 490,583 | 1,000 | 59,000 | 7,000 | 61,000 | 1,000 | 113,000 | 26,583 | 36,917 | 110,583 |
| 2011 | January | 1,452,000 | 1,528,167 | 463,000 | 493,417 | 1,000 | 28,000 | 2,000 | 72,000 | 1,000 | 123,000 | 26,500 | 38,333 | 108,833 |
| 2011 | February | 1,497,000 | 1,531,083 | 485,000 | 496,583 | 2,000 | 57,000 | 7,000 | 83,000 | 1,000 | 110,000 | 27,333 | 39,000 | 111,583 |
| 2011 | March | 1,464,000 | 1,522,417 | 490,000 | 496,167 | 8,000 | 40,000 | 4,000 | 86,000 | 1,000 | 129,000 | 24,250 | 43,917 | 114,500 |
| 2011 | April | 1,500,000 | 1,517,500 | 528,000 | 499,833 | 1,000 | 27,000 | 30,000 | 62,000 | 1,000 | 110,000 | 25,083 | 43,167 | 114,833 |
| 2011 | May | 1,519,000 | 1,513,333 | 488,000 | 497,583 | 0 | 33,000 | 0 | 43,000 | 1,000 | 105,000 | 25,750 | 44,167 | 112,250 |
| 2011 | June | 1,524,000 | 1,510,000 | 533,000 | 500,833 | 1,000 | 53,000 | 9,000 | 65,000 | 1,000 | 107,000 | 28,083 | 45,083 | 112,583 |
| 2011 | July | 1,547,000 | 1,508,750 | 512,000 | 500,250 | 2,000 | 42,000 | 6,000 | 80,000 | 0 | 142,000 | 30,083 | 50,500 | 116,000 |
| 2011 | August | 1,605,000 | 1,514,000 | 534,000 | 500,000 | 2,000 | 87,000 | 7,000 | 148,000 | 1,000 | 125,000 | 38,833 | 61,833 | 116,083 |
| 2011 | September | 1,539,000 | 1,509,833 | 533,000 | 501,833 | 1,000 | 40,000 | 7,000 | 48,000 | 1,000 | 119,000 | 41,750 | 62,750 | 116,833 |
| 2011 | October | 1,514,000 | 1,509,167 | 511,000 | 502,083 | 1,000 | 32,000 | 3,000 | 64,000 | 1,000 | 123,000 | 41,167 | 63,667 | 118,500 |
| 2011 | November | 1,462,000 | 1,507,083 | 513,000 | 504,167 | 13,000 | 42,000 | 3,000 | 64,000 | 1,000 | 115,000 | 42,250 | 65,917 | 117,500 |
| 2011 | December | 1,500,000 | 1,510,250 | 483,000 | 506,083 | 2,000 | 33,000 | 10,000 | 86,000 | 1,000 | 128,000 | 40,000 | 67,750 | 118,750 |
| 2012 | January | 1,455,000 | 1,510,500 | 467,000 | 506,417 | 1,000 | 19,000 | 4,000 | 105,000 | 1,000 | 104,000 | 39,250 | 70,333 | 117,167 |
| 2012 | February | 1,426,000 | 1,504,583 | 455,000 | 503,917 | 4,000 | 45,000 | 2,000 | 69,000 | 1,000 | 123,000 | 38,083 | 69,583 | 118,250 |
| 2012 | March | 1,459,000 | 1,504,167 | 456,000 | 501,083 | 0 | 27,000 | 16,000 | 60,000 | 2,000 | 125,000 | 37,667 | 66,417 | 117,833 |
| 2012 | April | 1,520,000 | 1,505,833 | 489,000 | 497,833 | 4,000 | 30,000 | 5,000 | 52,000 | 1,000 | 127,000 | 37,667 | 67,667 | 119,250 |
| 2012 | May | 1,509,000 | 1,505,000 | 488,000 | 497,833 | 1,000 | 25,000 | 9,000 | 72,000 | 2,000 | 117,000 | 36,917 | 69,333 | 120,167 |
| 2012 | June | 1,564,000 | 1,508,333 | 525,000 | 497,167 | 2,000 | 20,000 | 13,000 | 64,000 | 1,000 | 116,000 | 34,083 | 68,917 | 120,917 |
| 2012 | July | 1,527,000 | 1,506,667 | 516,000 | 497,500 | 1,000 | 36,000 | 28,000 | 113,000 | 1,000 | 151,000 | 33,667 | 69,833 | 121,583 |
| 2012 | August | 1,553,000 | 1,502,333 | 548,000 | 498,667 | 13,000 | 38,000 | 9,000 | 82,000 | 1,000 | 125,000 | 28,667 | 64,167 | 121,583 |
| 2012 | September | 1,365,000 | 1,499,000 | 502,000 | 496,083 | 2,000 | 38,000 | 6,000 | 43,000 | 1,000 | 113,000 | 28,417 | 63,833 | 121,083 |
| 2012 | October | 1,478,000 | 1,496,000 | 499,000 | 495,083 | 4,000 | 34,000 | 6,000 | 100,000 | 0 | 143,000 | 28,333 | 66,583 | 122,833 |
| 2012 | November | 1,467,000 | 1,496,417 | 499,000 | 493,917 | 5,000 | 41,000 | 13,000 | 80,000 | 1,000 | 113,000 | 28,917 | 67,083 | 122,667 |
| 2012 | December | 1,449,000 | 1,492,167 | 388,000 | 486,000 | 3,000 | 68,000 | 0 | 116,000 | 1,000 | 140,000 | 31,750 | 70,417 | 123,667 |
| 2013 | January | 1,365,000 | 1,484,667 | 461,000 | 485,500 | 1,000 | 41,000 | 0 | 121,000 | 1,000 | 153,000 | 33,583 | 72,083 | 127,750 |
| 2013 | February | 1,464,000 | 1,487,833 | 480,000 | 487,583 | 4,000 | 43,000 | 0 | 101,000 | 1,000 | 121,000 | 33,417 | 74,917 | 127,583 |
| 2013 | March | 1,501,000 | 1,491,333 | 459,000 | 487,833 | 3,000 | 19,000 | 0 | 84,000 | 1,000 | 117,000 | 32,500 | 78,250 | 127,000 |
| 2013 | April | 1,505,000 | 1,490,083 | 485,000 | 487,500 | 1,000 | 31,000 | 0 | 92,000 | 1,000 | 148,000 | 32,833 | 82,000 | 128,750 |

Table KR-B. West Coast (PADD 5) finished gasoline, distillate, and petroleum coke demand, import, and export data—continued

b: barrel; 42 gallons

Source US Energy Information Administration; http://www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbldpd_m_cur.htm

| Year | Month | Product supplied (gasoline) | | Product supplied (distillate) | | Gasoline imports / exports | | Distillate imports / exports | | Pet coke imports / exports | | Net exports (12-Mo av, in b/d) | | |
|------|-----------|-----------------------------|----------------|-------------------------------|----------------|----------------------------|---------------|------------------------------|---------------|----------------------------|---------------|--------------------------------|------------|----------|
| | | (b/d) | (12-Mo av b/d) | (b/d) | (12-Mo av b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Imports (b/d) | Exports (b/d) | Gasoline | Distillate | Pet coke |
| 2013 | May | 1,567,000 | 1,494,917 | 498,000 | 488,333 | 13,000 | 19,000 | 11,000 | 101,000 | 1,000 | 124,000 | 31,333 | 84,250 | 129,417 |
| 2013 | June | 1,520,000 | 1,491,250 | 484,000 | 484,917 | 17,000 | 46,000 | 20,000 | 136,000 | 1,000 | 110,000 | 32,250 | 89,667 | 128,917 |
| 2013 | July | 1,585,000 | 1,496,083 | 498,000 | 483,417 | 31,000 | 61,000 | 14,000 | 167,000 | 1,000 | 153,000 | 31,833 | 95,333 | 129,083 |
| 2013 | August | 1,569,000 | 1,497,417 | 537,000 | 482,500 | 13,000 | 17,000 | 27,000 | 131,000 | 1,000 | 107,000 | 30,083 | 97,917 | 127,583 |
| 2013 | September | 1,518,000 | 1,499,000 | 495,000 | 481,917 | 3,000 | 38,000 | 10,000 | 111,000 | 1,000 | 107,000 | 30,000 | 103,250 | 127,083 |
| 2013 | October | 1,497,000 | 1,500,583 | 503,000 | 482,250 | 1,000 | 34,000 | 10,000 | 137,000 | 0 | 104,000 | 30,250 | 106,000 | 123,833 |
| 2013 | November | 1,479,000 | 1,501,583 | 484,000 | 481,000 | 6,000 | 52,000 | 7,000 | 150,000 | 1,000 | 121,000 | 31,083 | 112,333 | 124,500 |
| 2013 | December | 1,508,000 | 1,506,500 | 425,000 | 484,083 | 2,000 | 71,000 | 5,000 | 174,000 | 1,000 | 137,000 | 31,417 | 116,750 | 124,250 |
| 2014 | January | 1,440,000 | 1,512,750 | 479,000 | 485,583 | 2,000 | 78,000 | 5,000 | 125,000 | 1,000 | 116,000 | 34,417 | 116,667 | 121,167 |
| 2014 | February | 1,514,000 | 1,516,917 | 491,000 | 486,500 | 2,000 | 39,000 | 7,000 | 113,000 | 1,000 | 125,000 | 34,250 | 117,083 | 121,500 |
| 2014 | March | 1,510,000 | 1,517,667 | 473,000 | 487,667 | 1,000 | 38,000 | 4,000 | 183,000 | 1,000 | 117,000 | 36,000 | 125,000 | 121,500 |
| 2014 | April | 1,545,000 | 1,521,000 | 537,000 | 492,000 | 1,000 | 34,000 | 7,000 | 146,000 | 1,000 | 124,000 | 36,250 | 128,917 | 119,500 |
| 2014 | May | 1,566,000 | 1,520,917 | 511,000 | 493,083 | 1,000 | 60,000 | 6,000 | 80,000 | 0 | 127,000 | 40,667 | 127,583 | 119,833 |
| 2014 | June | 1,588,000 | 1,526,583 | 536,000 | 497,417 | 3,000 | 28,000 | 12,000 | 113,000 | 2,000 | 111,000 | 40,333 | 126,333 | 119,833 |
| 2014 | July | 1,538,000 | 1,522,667 | 541,000 | 501,000 | 4,000 | 41,000 | 25,000 | 96,000 | 1,000 | 114,000 | 40,917 | 119,500 | 116,583 |
| 2014 | August | 1,573,000 | 1,523,000 | 561,000 | 503,000 | 2,000 | 34,000 | 15,000 | 42,000 | 1,000 | 139,000 | 43,250 | 113,083 | 119,250 |
| 2014 | September | 1,546,000 | 1,525,333 | 527,000 | 505,667 | 2,000 | 40,000 | 12,000 | 57,000 | 1,000 | 124,000 | 43,500 | 108,417 | 120,667 |
| 2014 | October | 1,556,000 | 1,530,250 | 555,000 | 510,000 | 1,000 | 35,000 | 17,000 | 89,000 | 1,000 | 115,000 | 43,583 | 103,833 | 121,500 |
| 2014 | November | 1,524,000 | 1,534,000 | 443,000 | 506,583 | 1,000 | 62,000 | 4,000 | 153,000 | 1,000 | 103,000 | 44,833 | 104,333 | 120,000 |
| 2014 | December | 1,515,000 | 1,534,583 | 518,000 | 514,333 | 4,000 | 88,000 | 5,000 | 135,000 | 1,000 | 139,000 | 46,083 | 101,083 | 120,167 |
| 2015 | January | 1,440,000 | 1,534,583 | 480,000 | 514,417 | 2,000 | 55,000 | 4,000 | 147,000 | 1,000 | 108,000 | 44,167 | 103,000 | 119,500 |
| 2015 | February | 1,548,000 | 1,537,417 | 535,000 | 518,083 | 0 | 48,000 | 58,000 | 107,000 | 1,000 | 123,000 | 45,083 | 98,250 | 119,333 |
| 2015 | March | 1,601,000 | 1,545,000 | 502,000 | 520,500 | 7,000 | 37,000 | 3,000 | 78,000 | 1,000 | 125,000 | 44,500 | 89,583 | 120,000 |
| 2015 | April | 1,601,000 | 1,549,667 | 513,000 | 518,500 | 1,000 | 32,000 | 8,000 | 139,000 | 1,000 | 103,000 | 44,333 | 88,917 | 118,250 |
| 2015 | May | 1,592,000 | 1,551,833 | 512,000 | 518,583 | 29,000 | 24,000 | 22,000 | 109,000 | 1,000 | 124,000 | 39,000 | 90,000 | 117,917 |
| 2015 | June | 1,621,000 | 1,554,583 | 537,000 | 518,667 | 17,000 | 30,000 | 20,000 | 74,000 | 1,000 | 106,000 | 38,000 | 86,083 | 117,583 |
| 2015 | July | 1,624,000 | 1,561,750 | 573,000 | 521,333 | 6,000 | 39,000 | 23,000 | 93,000 | 1,000 | 124,000 | 37,667 | 86,000 | 118,417 |
| 2015 | August | 1,608,000 | 1,564,667 | 560,000 | 521,250 | 8,000 | 17,000 | 15,000 | 83,000 | 1,000 | 112,000 | 35,750 | 89,417 | 116,167 |
| 2015 | September | 1,589,000 | 1,568,250 | 561,000 | 524,083 | 2,000 | 22,000 | 14,000 | 127,000 | 1,000 | 139,000 | 34,250 | 95,083 | 117,417 |
| 2015 | October | 1,604,000 | 1,572,250 | 564,000 | 524,833 | 1,000 | 16,000 | 6,000 | 84,000 | 1,000 | 91,000 | 32,667 | 95,583 | 115,417 |
| 2015 | November | 1,556,000 | 1,574,917 | 476,000 | 527,583 | 1,000 | 30,000 | 4,000 | 123,000 | 1,000 | 118,000 | 30,000 | 93,083 | 116,667 |
| 2015 | December | 1,569,000 | 1,579,417 | 500,000 | 526,083 | 3,000 | 44,000 | 4,000 | 106,000 | 0 | 132,000 | 26,417 | 90,750 | 116,167 |
| 2016 | January | 1,506,000 | 1,584,917 | 447,000 | 523,333 | 2,000 | 20,000 | 7,000 | 107,000 | 1,000 | 115,000 | 23,500 | 87,167 | 116,750 |
| 2016 | February | 1,606,000 | 1,589,750 | 511,000 | 521,333 | 1,000 | 53,000 | 13,000 | 96,000 | 1,000 | 117,000 | 23,833 | 90,000 | 116,250 |
| 2016 | March | 1,581,000 | 1,588,083 | 506,000 | 521,667 | 5,000 | 85,000 | 7,000 | 162,000 | 1,000 | 107,000 | 28,000 | 96,667 | 114,750 |
| 2016 | April | 1,591,000 | 1,587,250 | 506,000 | 521,083 | 1,000 | 39,000 | 4,000 | 131,000 | 0 | 116,000 | 28,583 | 96,333 | 115,917 |
| 2016 | May | 1,650,000 | 1,592,083 | 526,000 | 522,250 | 2,000 | 48,000 | 11,000 | 72,000 | 1,000 | 133,000 | 32,833 | 94,167 | 116,667 |
| 2016 | June | 1,655,000 | 1,594,917 | 556,000 | 523,833 | 5,000 | 76,000 | 33,000 | 82,000 | 2,000 | 121,000 | 37,667 | 93,750 | 117,833 |
| 2016 | July | 1,645,000 | 1,596,667 | 558,000 | 522,583 | 3,000 | 26,000 | 23,000 | 52,000 | 1,000 | 122,000 | 36,833 | 90,333 | 117,667 |
| 2016 | August | 1,694,000 | 1,603,833 | 601,000 | 526,000 | 2,000 | 62,000 | 37,000 | 66,000 | 1,000 | 147,000 | 41,083 | 87,083 | 120,583 |
| 2016 | September | 1,635,000 | 1,607,667 | 538,000 | 524,083 | 6,000 | 37,000 | 18,000 | 91,000 | 1,000 | 130,000 | 42,000 | 83,750 | 119,833 |
| 2016 | October | 1,574,000 | 1,605,167 | 542,000 | 522,250 | 5,000 | 42,000 | 2,000 | 80,000 | 1,000 | 100,000 | 43,833 | 83,750 | 120,583 |
| 2016 | November | 1,587,000 | 1,607,750 | 464,000 | 521,250 | 1,000 | 33,000 | 6,000 | 79,000 | 1,000 | 83,000 | 44,083 | 79,917 | 117,667 |
| 2016 | December | 1,602,000 | 1,610,500 | 471,000 | 518,833 | 1,000 | 91,000 | 4,000 | 121,000 | 1,000 | 112,000 | 48,167 | 81,167 | 115,917 |
| 2017 | January | 1,509,000 | 1,610,750 | 409,000 | 515,667 | 5,000 | 88,000 | 5,000 | 127,000 | 1,000 | 126,000 | 53,583 | 83,000 | 116,833 |
| 2017 | February | 1,534,000 | 1,604,750 | 449,000 | 510,500 | 7,000 | 54,000 | 17,000 | 123,000 | 1,000 | 145,000 | 53,167 | 84,917 | 119,167 |
| 2017 | March | 1,695,000 | 1,614,250 | 458,000 | 506,500 | 1,000 | 35,000 | 2,000 | 139,000 | 1,000 | 142,000 | 49,333 | 83,417 | 122,083 |

Table KR-C. Estimate calculation for cumulative GHG emissions associated with excess refinery production for export: emissions associated with West Coast exports of gasoline, distillate/diesel, and petroleum coke.

| | Net Exports (millions of barrels) ^a | | | Emission factors (in kg/barrel) | | | CO ₂ e emissions |
|---|--|------------|----------|---------------------------------|-------------------------|-----------------------|-----------------------------|
| | Gasoline | Distillate | Pet coke | Gasoline ^b | Distillate ^b | Pet coke ^c | (millions of tonnes) |
| Sep 2008–Aug 2009 | 4.71 | 25.9 | 40.8 | 492 | 565 | 685 | 44.9 |
| Sep 2009–Aug 2010 | 9.28 | 12.2 | 38.7 | 492 | 565 | 685 | 37.9 |
| Sep 2010–Aug 2011 | 14.17 | 22.6 | 42.4 | 492 | 565 | 685 | 48.7 |
| Sep 2011–Aug 2012 | 10.46 | 23.4 | 44.4 | 492 | 565 | 685 | 48.8 |
| Sep 2012–Aug 2013 | 10.98 | 35.7 | 46.6 | 492 | 565 | 685 | 57.5 |
| Sep 2013–Aug 2014 | 15.79 | 41.3 | 43.5 | 492 | 565 | 685 | 60.9 |
| Sep 2014–Aug 2015 | 13.05 | 32.6 | 42.4 | 492 | 565 | 685 | 53.9 |
| Sep 2015–Aug 2016 | 15.00 | 31.8 | 44.0 | 492 | 565 | 685 | 55.5 |
| Sep 2016–Mar 2017 | 10.77 | 21.5 | 25.3 | 492 | 565 | 685 | 34.7 |
| Cumulative total export-related emissions from September 2008–March 2017: | | | | | | | 443 |
| Annualized average emission increase (percent): | | | | | | | 3.59% |

Notes

- (a) Data from US Energy Information Administration: www.eia.gov/dnav/pet/pet_sum_snd_d_r50_mbbldpd_m_cur.htm
- (b) Emission factors from California Air Resources Board, Low Carbon Fuel Standard, default emissions; factors include emissions from oil extraction, oil transport, refining, and end use of gasoline and diesel. *See* 2015 LCFS reg. revision schedule (97.96 and 99.97 g/MJ gasoline and diesel, respectively) and Table 3 (5020.26 and 5647.74 MJ/b for gasoline and diesel, respectively).
- (c) Emission factor for combustion of petroleum coke from Karras, 2010 (Attachment KR-2: *See* Table S1).
Figures may not sum due to rounding.