

Calculation of 2015 Crude Average Carbon Intensity Value

Posting: Section 95489(c)(3) of the Low Carbon Fuel Standard (LCFS) Regulation¹ states that each year the Executive Officer will post the Annual Crude Average carbon intensity calculation at the ARB-LCFS website for public comment. Written comments shall be accepted for 15 calendar days following the date on which the analysis was posted.² Only comments related to potential factual or methodological errors in the posted Annual Crude Average carbon intensity value may be considered. The Executive Officer shall evaluate the comments received and, if the Executive Officer deems it necessary, may request in writing additional information or clarification from the commenters. Commenters shall have 10 days to respond to these requests. The Executive Officer shall post the final Annual Crude Average carbon intensity value at the ARB-LCFS website within 15 days of completion of the comment period, if no comments are received. If comments are received, the Executive Officer shall post the final Annual Crude Average carbon intensity value within 30 days of completion of the comment period or within 25 days of the latest request by the Executive Officer for additional information or clarification from a commenter, whichever is later.

Calculation of 2013, 2014 and 2015 Annual Crude Average Carbon Intensity Values: In table 1, California crude volumes and Annual Crude Average carbon intensity values for 2013, 2014 and 2015 are shown. In tables 2, 3 and 4, breakdowns of the sources of crude oil supplied to California refineries during 2013, 2014, and 2015 as well as the carbon intensity values assigned to these crude sources are displayed. All crude oil produced in and offshore of California during the time period of 2013 to 2015 was assumed to be refined in California.³ The volume contributions for California produced crudes are based on oil production data obtained from the California Department of Conservation.⁴ The volume contributions for California federal offshore crudes are based on oil production data obtained from the Bureau of Safety and Environmental Enforcement.⁵ The volume contributions of imported crudes are based on oil supply data submitted by refineries as part of annual LCFS reporting. The annual crude average carbon intensity values are a volume-weighted average of the carbon intensities for the crudes supplied in a given year.

¹ The LCFS regulation is found at California Code of Regulations (CCR), title 17, sections 95480-95497. Subsequent section references are to CCR title 17.

² No comments were received.

³ The total volume of California state and federal offshore crude supplied to California refineries as reported to ARB was 653 million barrels, which closely matches the total volume reported by oil producers to California Department of Conservation and Bureau of Safety and Environmental Enforcement of 651 million barrels.

⁴ California Department of Conservation, Online Production and Injection Query and Database, <http://opi.consrv.ca.gov/opi/opi.dll>, (accessed May 29, 2014, April 17, 2015, and May 19, 2016).

⁵ Bureau of Safety and Environmental Enforcement website http://www.data.bsee.gov/homepg/data_center/production/PacificFreeProd.asp (accessed May 2014, April 2015 and April 21, 2016).

Table 1: Crude Volumes and Annual Crude Average Carbon Intensity Values

| Year | 2013 | 2014 | 2015 |
|----------------------------|-------------|-------------|-------------|
| CI (gCO ₂ e/MJ) | 11.37 | 11.19 | 12.06 |
| Volume (bbl) | 588,254,470 | 612,332,497 | 605,749,048 |

Calculation of California Baseline Crude Average Carbon Intensity:

$CI_{BaselineCrudeAve}$ is the California Baseline Crude Average carbon intensity value, in gCO₂e/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during the baseline calendar year, 2010, and is calculated by the following formula for the 2015 compliance period:

$$CI_{BaselineCrudeAve} = \frac{[11.39 \times 588,254,470 + 11.39 \times 612,332,497 + 11.98 \times 605,749,048]}{[588,254,470 + 612,332,497 + 605,749,048]}$$

$$CI_{BaselineCrudeAve} = 11.59$$

Calculation of Three-Year California Crude Average Carbon Intensity:

$CI_{2015CrudeAve}$ is the Three-year California Crude Average carbon intensity value, in gCO₂e/MJ, attributed to the production and transport of the crude oil supplied as petroleum feedstock to California refineries during the most recent three calendar years (2013, 2014 and 2015), and is calculated by the following formula:

$$CI_{2015CrudeAve} = \frac{[11.37 \times 588,254,470 + 11.19 \times 612,332,497 + 12.06 \times 605,749,048]}{[588,254,470 + 612,332,497 + 605,749,048]}$$

$$CI_{2015CrudeAve} = 11.54$$

Summary: The Three-year California Crude Average carbon intensity of 11.54 gCO₂e/MJ is less than the California Baseline Crude Average carbon intensity value of 11.59 gCO₂e/MJ. Therefore, no incremental deficits for CARBOB or diesel will be added to each affected regulated party's compliance obligation for the annual compliance period of 2017.

Table 2: 2013 Refinery Crude Supply

| Country/State | Crude Name | CI (g/MJ) | 2013 Volume (bbl) |
|----------------------|---------------------------------|----------------------|------------------------------|
| | 2013 Volume Weighted Average CI | 11.37 | 588,254,470 |
| Algeria | Saharan | 11.39 | 74,260 |
| Angola | Dalia | 7.86 | 2,593,109 |
| | Girassol | 10.43 | 1,583,834 |
| | Greater Plutonio | 8.82 | 2,607,434 |
| | Kissanje | 11.39 | 519,752 |
| | Nemba | 11.39 | 579,161 |
| | Pazflor | 11.39 | 4,019,245 |
| Australia | Enfield | 11.39 | 527,084 |
| Brazil | Albacora Leste | 7.35 | 772,526 |
| | Frade | 6.62 | 430,048 |
| | Jubarte | 11.39 | 168,020 |
| | Lula | 11.39 | 1,920,416 |
| | Marlim | 6.75 | 1,878,263 |
| | Ostra | 5.71 | 930,198 |
| | Roncador | 11.39 | 215 |
| | Roncador Heavy | 11.39 | 1,271,000 |
| | Sapinhoa | 11.39 | 1,032,516 |
| Canada | Access Western Blend | 11.39 | 228,810 |
| | Albian Muskeg River Heavy | 11.39 | 124,000 |
| | Albian Heavy Synthetic | 21.02 | 3,258,978 |
| | Borealis | 11.39 | 386,249 |
| | Bow River | 11.39 | 270,383 |
| | Cardium | 11.39 | 16,611 |
| | Cold Lake | 18.74 | 6,772,240 |
| | Fosterton | 11.39 | 1,060,536 |
| | Halkirk | 11.39 | 35,728 |
| | Koch Alberta | 7.61 | 86,900 |
| | Light Sweet | 11.39 | 37,148 |
| | Peace River Sour | 11.39 | 92,915 |
| | Pembina | 11.39 | 201,500 |
| | Suncor Synthetic (all grades) | 24.49 | 4,898,699 |
| Chad | Doba | 11.39 | 719,359 |
| Colombia | Castilla | 6.45 | 11,754,560 |
| | Cusiana | 11.39 | 69,690 |
| | Magdalena | 11.39 | 3,642,933 |
| | Rubiales | 11.39 | 382,242 |

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|-------------------|-------------------------|-------|------------|
| | South Blend | 11.39 | 1,595,908 |
| | Vasconia | 6.63 | 7,762,498 |
| Ecuador | Napo | 7.45 | 22,693,813 |
| | Oriente | 9.34 | 44,719,127 |
| Equatorial Guinea | Ceiba | 11.39 | 3,357,194 |
| | Zafiro | 11.39 | 1,035,612 |
| Iraq | Basra Light | 12.08 | 53,485,785 |
| Kuwait | Kuwait | 11.39 | 4,566,220 |
| Mauritania | Chinquetti | 11.39 | 625,062 |
| Neutral Zone | Eocene | 5.59 | 291,620 |
| Nigeria | Antan | 11.39 | 544,019 |
| Oman | Oman | 12.30 | 270,490 |
| Peru | Loreto | 5.82 | 3,685,332 |
| Russia | ESPO | 12.09 | 5,808,606 |
| Saudi Arabia | Arab Extra Light | 6.86 | 19,670,435 |
| | Arab Light | 6.75 | 52,436,845 |
| | Arab Medium | 11.39 | 13,953,374 |
| | Arab Heavy | 11.39 | 813,300 |
| Venezuela | Bachaquero | 11.39 | 266,800 |
| | Boscan | 12.53 | 155,000 |
| | Hamaca DCO | 11.39 | 322,400 |
| | Laguna | 11.39 | 283,440 |
| | Zuata (all grades) | 23.50 | 480,740 |
| US Alaska | ANS | 12.81 | 72,965,982 |
| US Colorado | Niobrara | 11.39 | 642,988 |
| US New Mexico | Four Corners | 11.39 | 454,065 |
| US North Dakota | Bakken | 11.39 | 3,147,501 |
| US Texas | West Texas Intermediate | 11.39 | 279,600 |
| US Utah | Covenant | 11.39 | 519,556 |
| | Utah Sweet | 11.39 | 71,645 |
| US Wyoming | Wyoming | 11.39 | 115,078 |
| US California* | Aliso Canyon | 1.97 | 250,249 |
| | Ant Hill | 26.37 | 51,053 |
| | Antelope Hills | 2.69 | 133,377 |
| | Antelope Hills, North | 13.16 | 242,962 |
| | Arroyo Grande | 27.81 | 366,738 |
| | Asphalto | 7.92 | 250,847 |
| | Bandini | 7.75 | 6,733 |
| | Bardsdale | 5.24 | 114,429 |
| | Barham Ranch | 2.74 | 78,498 |
| | Beer Nose | 2.18 | 35,139 |

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| | Belgian Anticline | 3.62 | 42,247 |
| | Bellevue | 8.27 | 20,398 |
| | Bellevue, West | 8.63 | 10,026 |
| | Belmont, Offshore | 3.19 | 701,620 |
| | Belridge, North | 5.00 | 2,513,108 |
| | Belridge, South | 14.49 | 23,527,707 |
| | Beverly Hills | 3.33 | 745,772 |
| | Big Mountain | 3.15 | 28,171 |
| | Blackwells Corner | 11.05 | 9,527 |
| | Brea-Olinda | 2.97 | 1,111,985 |
| | Buena Vista | 13.61 | 1,233,874 |
| | Burrel | 16.44 | 11,871 |
| | Cabrillo | 2.84 | 12,791 |
| | Canal | 4.04 | 28,684 |
| | Canfield Ranch | 3.58 | 114,807 |
| | Caneros Creek | 2.96 | 20,545 |
| | Cascade | 2.20 | 144,353 |
| | Casmalia | 11.61 | 202,648 |
| | Castaic Hills | 2.79 | 9,372 |
| | Cat Canyon | 5.09 | 1,438,877 |
| | Cheviot Hills | 3.06 | 41,971 |
| | Chico-Martinez | 3.83 | 195,601 |
| | Cienaga Canyon | 3.89 | 28,348 |
| | Coalinga | 25.36 | 5,523,804 |
| | Coles Levee, N | 3.47 | 155,665 |
| | Coles Levee, S | 4.27 | 74,596 |
| | Comanche | 10.75 | 31,331 |
| | Coyote, East | 5.59 | 229,482 |
| | Cuyama, South | 11.86 | 212,571 |
| | Cymric | 19.91 | 14,459,179 |
| | Deer Creek | 18.29 | 48,556 |
| | Del Valle | 4.30 | 55,332 |
| | Devils Den | 3.63 | 18,934 |
| | Edison | 9.03 | 786,006 |
| | El Segundo | 2.98 | 30,083 |
| | Elk Hills | 5.36 | 12,418,438 |
| | Elwood, S., Offshore | 4.18 | 1,734,916 |
| | Fruitvale | 10.24 | 431,701 |
| | Greeley | 8.14 | 112,119 |
| | Hasley Canyon | 2.07 | 37,433 |
| | Helm | 3.35 | 56,025 |

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| | Holser | 3.01 | 18,242 |
| | Honor Rancho | 2.69 | 64,973 |
| | Huntington Beach | 7.80 | 2,143,415 |
| | Hyperion | 1.65 | 10,848 |
| | Inglewood | 8.74 | 2,731,733 |
| | Jacalitos | 2.22 | 124,723 |
| | Jasmin | 17.54 | 123,904 |
| | Kern Front | 25.06 | 3,447,417 |
| | Kern River | 9.55 | 25,738,315 |
| | Kettleman Middle Dome | 3.53 | 47,090 |
| | Kettleman North Dome | 4.70 | 31,844 |
| | Landslide | 10.49 | 33,929 |
| | Las Cienegas | 4.46 | 337,733 |
| | Livermore | 2.17 | 12,088 |
| | Lompoc | 31.05 | 364,509 |
| | Long Beach | 5.12 | 1,389,178 |
| | Long Beach Airport | 3.73 | 11,329 |
| | Los Angeles Downtown | 4.11 | 23,697 |
| | Los Angeles, East | 8.28 | 22,814 |
| | Lost Hills | 11.40 | 10,762,890 |
| | Lost Hills, Northwest | 4.35 | 25,649 |
| | Lynch Canyon | 7.73 | 160,485 |
| | Mahala | 3.57 | 12,021 |
| | McCool Ranch | 1.71 | 11,388 |
| | McDonald Anticline | 4.92 | 54,787 |
| | McKittrick | 15.47 | 2,513,368 |
| | Midway-Sunset | 21.18 | 28,794,725 |
| | Montalvo, West | 2.63 | 658,941 |
| | Montebello | 10.29 | 572,863 |
| | Monument Junction | 3.81 | 120,059 |
| | Mount Poso | 20.57 | 1,114,063 |
| | Mountain View | 4.42 | 103,790 |
| | Newhall-Potrero | 2.83 | 119,417 |
| | Newport, West | 4.33 | 88,486 |
| | Oak Canyon | 3.81 | 16,255 |
| | Oak Park | 2.13 | 17,005 |
| | Oakridge | 2.57 | 117,458 |
| | Oat Mountain | 1.90 | 86,998 |
| | Ojai | 3.27 | 265,080 |
| | Olive | 1.93 | 73,195 |
| | Orcutt | 12.52 | 1,432,214 |

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| | Oxnard | 16.89 | 102,030 |
| | Paloma | 3.42 | 22,861 |
| | Placerita | 31.66 | 942,420 |
| | Playa Del Rey | 6.04 | 33,674 |
| | Pleito | 4.01 | 586,827 |
| | Poso Creek | 28.41 | 2,793,324 |
| | Pyramid Hills | 2.92 | 62,093 |
| | Railroad Gap | 6.56 | 133,231 |
| | Raisin City | 7.64 | 114,381 |
| | Ramona | 3.37 | 46,219 |
| | Richfield | 3.63 | 320,586 |
| | Rincon | 2.93 | 310,729 |
| | Rio Bravo | 4.85 | 353,540 |
| | Rio Viejo | 2.50 | 73,224 |
| | Riverdale | 2.99 | 68,063 |
| | Rose | 2.10 | 463,643 |
| | Rosecrans | 5.18 | 152,981 |
| | Rosecrans, South | 3.11 | 8,592 |
| | Rosedale | 6.60 | 14,719 |
| | Rosedale Ranch | 8.84 | 170,325 |
| | Round Mountain | 28.73 | 4,175,910 |
| | Russell Ranch | 6.56 | 62,098 |
| | Salt Lake | 2.82 | 51,699 |
| | Salt Lake, South | 3.68 | 31,833 |
| | San Ardo | 28.82 | 7,229,422 |
| | San Miguelito | 4.44 | 470,557 |
| | San Vicente | 2.31 | 271,235 |
| | Sansinena | 2.54 | 173,094 |
| | Santa Clara Avenue | 3.31 | 60,971 |
| | Santa Fe Springs | 11.34 | 937,016 |
| | Santa Maria Valley | 6.48 | 229,038 |
| | Santa Susana | 3.14 | 17,820 |
| | Sargent | 4.77 | 35,510 |
| | Saticoy | 3.26 | 36,633 |
| | Sawtelle | 2.83 | 174,433 |
| | Seal Beach | 4.07 | 443,272 |
| | Semitropic | 3.39 | 38,312 |
| | Sespe | 2.91 | 388,345 |
| | Shafter, North | 2.54 | 940,893 |
| | Shiells Canyon | 3.24 | 88,990 |
| | South Mountain | 3.10 | 670,182 |

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|----------------|--------------------|-------|------------|
| | Stockdale | 1.71 | 117,873 |
| | Tapia | 6.42 | 43,455 |
| | Tapo Canyon, South | 2.87 | 8,306 |
| | Tejon | 7.96 | 488,252 |
| | Tejon Hills | 5.74 | 15,359 |
| | Tejon, North | 4.72 | 44,017 |
| | Temescal | 3.10 | 66,503 |
| | Ten Section | 6.22 | 94,873 |
| | Timber Canyon | 3.30 | 38,081 |
| | Torrance | 4.45 | 387,747 |
| | Torrey Canyon | 2.88 | 123,261 |
| | Union Avenue | 1.79 | 13,455 |
| | Ventura | 4.35 | 5,135,029 |
| | Wayside Canyon | 2.93 | 54,060 |
| | West Mountain | 2.89 | 14,743 |
| | Wheeler Ridge | 3.34 | 68,613 |
| | White Wolf | 1.64 | 9,821 |
| | Whittier | 2.51 | 72,634 |
| | Wilmington | 6.36 | 13,858,052 |
| | Yowlumne | 11.22 | 230,670 |
| | Zaca | 10.45 | 215,552 |
| US Federal OCS | Beta | 1.74 | 1,511,235 |
| | Carpinteria | 2.62 | 372,631 |
| | Dos Cuadras | 3.83 | 988,268 |
| | Hondo | 4.27 | 5,120,464 |
| | Hueneme | 4.33 | 107,563 |
| | Pescado | 3.45 | 2,322,478 |
| | Point Arguello | 8.68 | 1,206,958 |
| | Point Pedernales | 6.00 | 1,395,406 |
| | Sacate | 2.33 | 3,558,681 |
| | Santa Clara | 2.41 | 379,709 |
| | Socketeye | 5.82 | 983,983 |

Table 3: 2014 Refinery Crude Supply

| Country/State | Crude Name | CI (g/MJ) | 2014 Volume (bbl) |
|----------------------|---------------------------------|----------------------|------------------------------|
| | 2014 Volume Weighted Average CI | 11.19 | 612,332,497 |
| Angola | Clov | 11.39 | 1,955,065 |
| | Pazflor | 11.39 | 11,305,783 |
| Brazil | Albacora Leste | 7.35 | 554,900 |
| | Lula | 11.39 | 114,572 |
| | Sapinhoa | 11.39 | 6,063,680 |
| Canada | Access Western Blend | 11.39 | 4,074,970 |
| | Albian Heavy Synthetic | 21.02 | 746,514 |
| | Albian Vacuum Blend | 11.39 | 124,685 |
| | Canadian Heavy | 11.39 | 51,871 |
| | Cold Lake | 18.74 | 5,334,932 |
| | Fosterton | 11.39 | 609,584 |
| | High Prairie Bitumen | 11.39 | 92,820 |
| | Kearl Lake | 11.39 | 546,566 |
| | Koch Alberta | 7.61 | 87,459 |
| | Light Sweet | 11.39 | 162,424 |
| | McKay Heavy | 11.39 | 549,285 |
| | Mixed Sweet | 7.75 | 371,558 |
| | Peace River Sour | 11.39 | 33,421 |
| | Premium Albian Synthetic | 11.39 | 672,100 |
| | Seal Bitumen | 11.39 | 17,980 |
| | Suncor Synthetic (all grades) | 24.49 | 710,900 |
| | Surmont | 11.39 | 918,406 |
| | Western Canadian Select | 11.39 | 9,390 |
| Colombia | Castilla | 6.45 | 12,729,107 |
| | Magdalena | 11.39 | 5,804,028 |
| | South Blend | 11.39 | 3,021,157 |
| | Vasconia | 6.63 | 9,858,634 |
| Ecuador | Napo | 7.45 | 17,364,711 |
| | Oriente | 9.34 | 36,382,389 |
| Equatorial Guinea | Ceiba | 11.39 | 1,474,959 |
| Iraq | Basra Light | 12.08 | 70,562,909 |
| Mexico | Isthmus | 11.39 | 4,318,914 |
| Neutral Zone | Eocene | 5.59 | 535,800 |
| Peru | Loreto | 5.82 | 2,729,775 |
| | Mayna | 7.14 | 415,167 |
| Russia | ESPO | 12.09 | 752,695 |

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|-----------------|-----------------------|-------|------------|
| | Sokol | 11.39 | 2,025,198 |
| Saudi Arabia | Arab Extra Light | 6.86 | 30,663,255 |
| | Arab Light | 6.75 | 73,768,778 |
| | Arab Medium | 11.39 | 2,037,200 |
| Venezuela | Boscan | 12.53 | 1,036,380 |
| | Hamaca | 11.39 | 653,984 |
| | Hamaca DCO | 11.39 | 919,900 |
| US Alaska | ANS | 12.81 | 70,438,234 |
| US Colorado | Niobrara | 11.39 | 880,842 |
| US Louisiana | GCA | 11.39 | 162,695 |
| US New Mexico | Four Corners | 11.39 | 1,129,938 |
| | New Mexico Sweet | 11.39 | 85,329 |
| US North Dakota | Bakken | 11.39 | 3,089,846 |
| US Utah | Covenant | 11.39 | 259,064 |
| | Utah Sweet | 11.39 | 913,318 |
| | Utah Black Wax | 11.39 | 220,976 |
| US Wyoming | Wyoming | 11.39 | 618,489 |
| US California* | Aliso Canyon | 1.97 | 207,560 |
| | Ant Hill | 26.37 | 48,791 |
| | Antelope Hills | 2.69 | 121,034 |
| | Antelope Hills, North | 13.16 | 316,664 |
| | Arroyo Grande | 27.81 | 422,592 |
| | Asphalto | 7.92 | 229,677 |
| | Bandini | 7.75 | 5,875 |
| | Bardsdale | 5.24 | 170,049 |
| | Barham Ranch | 2.74 | 83,030 |
| | Beer Nose | 2.18 | 13,206 |
| | Belgian Anticline | 3.62 | 38,754 |
| | Bellevue | 8.27 | 27,654 |
| | Bellevue, West | 8.63 | 10,295 |
| | Belmont, Offshore | 3.19 | 670,435 |
| | Belridge, North | 5.00 | 2,372,083 |
| | Belridge, South | 14.49 | 23,578,653 |
| | Beverly Hills | 3.33 | 685,013 |
| | Big Mountain | 3.15 | 28,992 |
| | Blackwells Corner | 11.05 | 11,618 |
| | Brea-Olinda | 2.97 | 1,074,529 |
| | Buena Vista | 13.61 | 1,170,187 |
| | Burrel | 16.44 | 14,858 |
| | Cabrillo | 2.84 | 24,378 |
| | Canal | 4.04 | 27,497 |

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|--|-----------------------|-------|------------|
| | Canfield Ranch | 3.58 | 105,820 |
| | Caneros Creek | 2.96 | 20,001 |
| | Cascade | 2.20 | 132,485 |
| | Casmalia | 11.61 | 200,271 |
| | Castaic Hills | 2.79 | 6,264 |
| | Cat Canyon | 5.09 | 1,579,569 |
| | Cheviot Hills | 3.06 | 46,751 |
| | Chico-Martinez | 3.83 | 168,064 |
| | Cienaga Canyon | 3.89 | 25,550 |
| | Coalinga | 25.36 | 6,105,373 |
| | Coles Levee, N | 3.47 | 207,319 |
| | Coles Levee, S | 4.27 | 72,539 |
| | Comanche | 10.75 | 28,858 |
| | Coyote, East | 5.59 | 243,727 |
| | Cuyama, South | 11.86 | 208,230 |
| | Cymric | 19.91 | 15,685,203 |
| | Deer Creek | 18.29 | 46,115 |
| | Del Valle | 4.30 | 55,590 |
| | Devils Den | 3.63 | 17,519 |
| | Edison | 9.03 | 833,919 |
| | El Segundo | 2.98 | 26,397 |
| | Elk Hills | 5.36 | 11,811,836 |
| | Elwood, S., Offshore | 4.18 | 1,366,871 |
| | Fruitvale | 10.24 | 451,811 |
| | Greeley | 8.14 | 113,322 |
| | Hasley Canyon | 2.07 | 30,034 |
| | Helm | 3.35 | 63,708 |
| | Holser | 3.01 | 18,383 |
| | Honor Rancho | 2.69 | 50,500 |
| | Huntington Beach | 7.80 | 2,314,022 |
| | Hyperion | 1.65 | 9,839 |
| | Inglewood | 8.74 | 2,664,143 |
| | Jacalitos | 2.22 | 124,479 |
| | Jasmin | 17.54 | 125,925 |
| | Kern Front | 25.06 | 4,619,561 |
| | Kern River | 9.55 | 25,264,002 |
| | Kettleman Middle Dome | 3.53 | 63,295 |
| | Kettleman North Dome | 4.70 | 75,584 |
| | Landslide | 10.49 | 32,727 |
| | Las Cienegas | 4.46 | 295,786 |
| | Livermore | 2.17 | 12,538 |

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| | Lompoc | 31.05 | 342,134 |
| | Long Beach | 5.12 | 1,402,368 |
| | Long Beach Airport | 3.73 | 11,527 |
| | Los Angeles Downtown | 4.11 | 14,374 |
| | Los Angeles, East | 8.28 | 28,091 |
| | Lost Hills | 11.40 | 11,219,489 |
| | Lost Hills, Northwest | 4.35 | 24,919 |
| | Lynch Canyon | 7.73 | 291,504 |
| | Mahala | 3.57 | 10,886 |
| | McCool Ranch | 1.71 | 21,835 |
| | McDonald Anticline | 4.92 | 63,620 |
| | McKittrick | 15.47 | 3,131,900 |
| | Midway-Sunset | 21.18 | 29,287,992 |
| | Montalvo, West | 2.63 | 572,639 |
| | Montebello | 10.29 | 513,055 |
| | Monument Junction | 3.81 | 109,107 |
| | Mount Poso | 20.57 | 1,258,638 |
| | Mountain View | 4.42 | 100,261 |
| | Newhall-Potrero | 2.83 | 113,963 |
| | Newport, West | 4.33 | 87,783 |
| | Oak Canyon | 3.81 | 23,370 |
| | Oak Park | 2.13 | 17,116 |
| | Oakridge | 2.57 | 147,570 |
| | Oat Mountain | 1.90 | 83,680 |
| | Ojai | 3.27 | 264,077 |
| | Olive | 1.93 | 85,627 |
| | Orcutt | 12.52 | 1,369,801 |
| | Oxnard | 16.89 | 336,359 |
| | Paloma | 3.42 | 19,238 |
| | Placerita | 31.66 | 896,067 |
| | Playa Del Rey | 6.04 | 52,031 |
| | Pleito | 4.01 | 982,619 |
| | Poso Creek | 28.41 | 3,606,689 |
| | Pyramid Hills | 2.92 | 55,326 |
| | Railroad Gap | 6.56 | 98,623 |
| | Raisin City | 7.64 | 126,411 |
| | Ramona | 3.37 | 42,709 |
| | Richfield | 3.63 | 312,338 |
| | Rincon | 2.93 | 292,997 |
| | Rio Bravo | 4.85 | 343,180 |
| | Rio Viejo | 2.50 | 52,281 |

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| | | | |
|--|--------------------|-------|-----------|
| | Riverdale | 2.99 | 64,401 |
| | Rose | 2.10 | 605,610 |
| | Rosecrans | 5.18 | 154,072 |
| | Rosecrans, South | 3.11 | 9,583 |
| | Rosedale | 6.60 | 10,095 |
| | Rosedale Ranch | 8.84 | 154,135 |
| | Round Mountain | 28.73 | 4,225,365 |
| | Russell Ranch | 6.56 | 58,546 |
| | Salt Lake | 2.82 | 57,511 |
| | Salt Lake, South | 3.68 | 29,412 |
| | San Ardo | 28.82 | 7,682,477 |
| | San Miguelito | 4.44 | 451,169 |
| | San Vicente | 2.31 | 266,409 |
| | Sansinena | 2.54 | 160,505 |
| | Santa Clara Avenue | 3.31 | 53,044 |
| | Santa Fe Springs | 11.34 | 1,058,837 |
| | Santa Maria Valley | 6.48 | 229,496 |
| | Santa Susana | 3.14 | 15,871 |
| | Sargent | 4.77 | 32,284 |
| | Saticoy | 3.26 | 39,774 |
| | Sawtelle | 2.83 | 186,785 |
| | Seal Beach | 4.07 | 450,916 |
| | Semitropic | 3.39 | 40,063 |
| | Sespe | 2.91 | 477,032 |
| | Shafter, North | 2.54 | 787,194 |
| | Shiells Canyon | 3.24 | 81,063 |
| | South Mountain | 3.10 | 741,363 |
| | Stockdale | 1.71 | 124,938 |
| | Tapia | 6.42 | 26,369 |
| | Tapo Canyon, South | 2.87 | 9,283 |
| | Tejon | 7.96 | 460,092 |
| | Tejon Hills | 5.74 | 13,800 |
| | Tejon, North | 4.72 | 38,037 |
| | Temescal | 3.10 | 72,793 |
| | Ten Section | 6.22 | 91,380 |
| | Timber Canyon | 3.30 | 31,586 |
| | Torrance | 4.45 | 367,184 |
| | Torrey Canyon | 2.88 | 118,353 |
| | Union Avenue | 1.79 | 9,713 |
| | Ventura | 4.35 | 5,089,921 |
| | Wayside Canyon | 2.93 | 24,046 |

June 23, 2016

| | | | |
|----------------|------------------|-------|------------|
| | West Mountain | 2.89 | 9,239 |
| | Wheeler Ridge | 3.34 | 74,985 |
| | White Wolf | 1.64 | 11,879 |
| | Whittier | 2.51 | 95,020 |
| | Wilmington | 6.36 | 14,240,290 |
| | Yowlumne | 11.22 | 176,201 |
| | Zaca | 10.45 | 245,055 |
| US Federal OCS | Beta | 1.74 | 1,732,242 |
| | Carpinteria | 2.62 | 355,317 |
| | Dos Cuadras | 3.83 | 933,465 |
| | Hondo | 4.27 | 5,180,905 |
| | Hueneme | 4.33 | 96,849 |
| | Pescado | 3.45 | 2,667,240 |
| | Point Arguello | 8.68 | 1,306,278 |
| | Point Pedernales | 6.00 | 1,722,801 |
| | Sacate | 2.33 | 2,945,500 |
| | Santa Clara | 2.41 | 633,594 |
| | Sockeye | 5.82 | 851,044 |

Table 4: 2015 Refinery Crude Supply

| Country/State | Crude Name | CI (g/MJ) | 2015 Volume (bbl) |
|----------------------|-------------------------------------|------------------|--------------------------|
| | 2015 Volume Weighted Average CI | 12.06 | 605,749,048 |
| Angola | Clov | 8.25 | 4,204,843 |
| | Girassol | 10.33 | 1,118,099 |
| | Greater Plutonio | 9.78 | 1,774,496 |
| | Hungo | 9.10 | 1,486,409 |
| | Pazflor | 8.91 | 3,119,864 |
| | Sangos | 11.98 | 3,051,709 |
| Australia | Pyrenees | 5.99 | 454,412 |
| | Vincent | 5.05 | 652,505 |
| Belize | Belize Light | 11.98 | 360,417 |
| Brazil | Bijupira Salema | 8.08 | 433,868 |
| | Iracema (Cernambi) | 11.98 | 5,078,582 |
| | Lula | 9.94 | 2,931,225 |
| | Ostra | 6.54 | 337,723 |
| | Peregrino | 11.98 | 302,079 |
| | Sapinhoa | 8.53 | 5,694,501 |
| | Tubarao Azul | 11.98 | 26,098 |
| | Tubarao Martelo | 11.98 | 104,143 |
| Canada | Access Western Blend | 16.31 | 247,794 |
| | Albian Heavy Synthetic (all grades) | 19.90 | 1,463,238 |
| | Boundary Lake | 8.27 | 102,760 |
| | Burnaby Blend | 11.98 | 154,030 |
| | Canadian Conventional Heavy | 9.27 | 269,969 |
| | Cold Lake | 18.40 | 3,605,136 |
| | Kearl Lake | 12.05 | 308,662 |
| | Mixed Sweet | 8.27 | 1,707,626 |
| | Shell Synthetic (all grades) | 21.39 | 199,994 |
| | Suncor Synthetic (all grades) | 23.71 | 2,286,703 |
| | Surmont Heavy Blend | 18.26 | 792,787 |
| | Wabasca | 6.79 | 269,509 |
| | Western Canadian Select | 18.43 | 29,942 |
| Colombia | Castilla | 9.61 | 4,374,828 |
| | Magdalena | 21.01 | 3,066,144 |
| | South Blend | 9.22 | 3,669,732 |
| | Vasconia | 9.33 | 30,722,134 |

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| | | | |
|-------------------|-----------------------|-------|------------|
| Ecuador | Napo | 9.56 | 23,122,264 |
| | Oriente | 10.90 | 39,409,691 |
| Equatorial Guinea | Ceiba | 10.88 | 1,713,733 |
| Iraq | Basra Light | 13.08 | 17,149,050 |
| Kuwait | Kuwait | 10.31 | 26,477,992 |
| Mexico | Isthmus | 10.16 | 359,910 |
| Peru | Loreto | 8.23 | 687,938 |
| | Pirana | 11.98 | 249,579 |
| Russia | ESPO | 13.70 | 3,264,866 |
| | Sokol | 10.51 | 536,721 |
| Saudi Arabia | Arab Extra Light | 9.35 | 27,322,040 |
| | Arab Light | 9.15 | 81,249,853 |
| | Arab Medium | 8.66 | 5,423,168 |
| Venezuela | Boscan | 10.76 | 1,602,120 |
| | Hamaca DCO | 7.63 | 692,490 |
| US Alaska | ANS | 12.93 | 75,321,220 |
| US Colorado | Niobrara | 8.03 | 1,330,366 |
| US Gulf of Mexico | Mars | 11.98 | 304,100 |
| US Louisiana | GCA | 11.98 | 93,626 |
| US New Mexico | Four Corners | 9.37 | 1,263,943 |
| | New Mexico Sweet | 9.37 | 236,315 |
| US North Dakota | Bakken | 10.18 | 862,859 |
| US Texas | Eagle Ford Shale | 12.03 | 134,093 |
| US Utah | Utah Sweet | 5.99 | 351,327 |
| | Utah Black Wax | 5.09 | 169,700 |
| US Wyoming | Wyoming Sweet | 24.11 | 70,744 |
| | | | |
| US California* | Aliso Canyon | 4.16 | 194,618 |
| | Ant Hill | 22.04 | 42,769 |
| | Antelope Hills | 6.56 | 111,775 |
| | Antelope Hills, North | 19.14 | 336,624 |
| | Arroyo Grande | 29.33 | 498,091 |
| | Asphalto | 8.00 | 225,255 |
| | Bandini | 6.78 | 5,910 |
| | Bardsdale | 3.63 | 268,388 |
| | Barham Ranch | 2.64 | 77,361 |
| | Beer Nose | 2.50 | 3,706 |
| | Belgian Anticline | 3.56 | 35,974 |

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|--|----------------------|-------|------------|
| | Bellevue | 7.52 | 31,508 |
| | Bellevue, West | 4.55 | 9,164 |
| | Belmont, Offshore | 4.15 | 621,834 |
| | Belridge, North | 4.77 | 2,329,514 |
| | Belridge, South | 14.84 | 22,901,920 |
| | Beverly Hills | 4.49 | 670,634 |
| | Big Mountain | 2.58 | 25,188 |
| | Blackwells Corner | 5.03 | 11,797 |
| | Brea-Olinda | 3.17 | 1,071,791 |
| | Buena Vista | 7.45 | 1,186,195 |
| | Burrel | 25.23 | 14,840 |
| | Cabrillo | 2.49 | 22,714 |
| | Canal | 4.17 | 23,829 |
| | Canfield Ranch | 3.99 | 90,987 |
| | Carneros Creek | 3.40 | 19,447 |
| | Cascade | 2.12 | 159,831 |
| | Casmalia | 9.35 | 198,338 |
| | Castaic Hills | 2.52 | 5,812 |
| | Cat Canyon | 4.08 | 1,289,170 |
| | Cheviot Hills | 3.39 | 31,173 |
| | Chico-Martinez | 15.81 | 199,064 |
| | Cienaga Canyon | 4.08 | 23,212 |
| | Coalinga | 27.85 | 6,780,338 |
| | Coles Levee, N | 4.56 | 210,258 |
| | Coles Levee, S | 2.70 | 71,286 |
| | Comanche | 7.88 | 22,968 |
| | Coyote, East | 6.15 | 239,183 |
| | Cuyama, South | 14.43 | 192,364 |
| | Cymric | 19.23 | 16,544,912 |
| | Deer Creek | 9.96 | 38,926 |
| | Del Valle | 4.73 | 43,930 |
| | Devils Den | 5.88 | 13,338 |
| | Edison | 15.55 | 747,779 |
| | El Segundo | 3.77 | 25,318 |
| | Elk Hills | 6.30 | 11,231,816 |
| | Elwood, S., Offshore | 3.57 | 497,254 |
| | Fruitvale | 3.87 | 460,887 |
| | Greeley | 9.60 | 108,477 |

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|--|-----------------------|-------|------------|
| | Hasley Canyon | 2.15 | 26,148 |
| | Helm | 3.93 | 47,364 |
| | Holser | 3.04 | 20,135 |
| | Honor Rancho | 4.09 | 70,309 |
| | Huntington Beach | 5.11 | 2,472,233 |
| | Hyperion | 2.05 | 10,369 |
| | Inglewood | 9.52 | 2,376,814 |
| | Jacalitos | 2.40 | 113,835 |
| | Jasmin | 12.77 | 112,176 |
| | Kern Front | 25.10 | 5,005,420 |
| | Kern River | 9.63 | 25,684,157 |
| | Kettleman Middle Dome | 3.70 | 87,981 |
| | Kettleman North Dome | 5.14 | 171,640 |
| | Landslide | 12.17 | 31,189 |
| | Las Cienegas | 4.63 | 279,585 |
| | Livermore | 2.56 | 9,687 |
| | Lompoc | 19.65 | 345,984 |
| | Long Beach | 6.84 | 1,639,756 |
| | Long Beach Airport | 4.02 | 10,101 |
| | Los Angeles Downtown | 5.71 | 42,492 |
| | Los Angeles, East | 10.02 | 12,161 |
| | Lost Hills | 10.26 | 11,209,502 |
| | Lost Hills, Northwest | 3.91 | 16,358 |
| | Lynch Canyon | 12.00 | 268,814 |
| | Mahala | 2.70 | 7,298 |
| | McCool Ranch | 3.32 | 27,873 |
| | McDonald Anticline | 4.30 | 60,061 |
| | McKittrick | 24.64 | 3,334,461 |
| | Midway-Sunset | 25.05 | 28,163,266 |
| | Montalvo, West | 2.28 | 399,469 |
| | Montebello | 14.96 | 507,852 |
| | Monument Junction | 3.62 | 96,716 |
| | Mount Poso | 11.17 | 1,303,617 |
| | Mountain View | 3.71 | 95,609 |
| | Newhall-Potrero | 2.85 | 107,690 |
| | Newport, West | 4.38 | 85,699 |
| | Oak Canyon | 3.50 | 22,522 |
| | Oak Park | 2.48 | 13,925 |

| | | | |
|--|--------------------|-------|-----------|
| | Oakridge | 2.39 | 113,970 |
| | Oat Mountain | 2.59 | 74,677 |
| | Ojai | 2.75 | 238,334 |
| | Olive | 1.98 | 68,485 |
| | Orcutt | 12.71 | 1,140,191 |
| | Oxnard | 9.16 | 326,774 |
| | Paloma | 3.51 | 17,106 |
| | Placerita | 31.20 | 879,526 |
| | Playa Del Rey | 4.58 | 46,480 |
| | Pleito | 2.60 | 1,249,956 |
| | Poso Creek | 28.15 | 4,137,105 |
| | Pyramid Hills | 3.34 | 55,893 |
| | Railroad Gap | 5.05 | 83,256 |
| | Raisin City | 8.72 | 112,082 |
| | Ramona | 3.41 | 41,606 |
| | Richfield | 4.40 | 296,903 |
| | Rincon | 3.93 | 270,538 |
| | Rio Bravo | 5.75 | 329,409 |
| | Rio Viejo | 2.87 | 42,527 |
| | Riverdale | 3.74 | 54,922 |
| | Rose | 2.70 | 399,905 |
| | Rosecrans | 5.52 | 147,910 |
| | Rosecrans, South | 3.11 | 9,467 |
| | Rosedale | 6.49 | 17,171 |
| | Rosedale Ranch | 8.00 | 149,044 |
| | Round Mountain | 25.99 | 3,610,219 |
| | Russell Ranch | 7.56 | 48,831 |
| | Salt Lake | 2.67 | 46,379 |
| | Salt Lake, South | 3.84 | 16,683 |
| | San Ardo | 27.26 | 7,795,661 |
| | San Miguelito | 5.65 | 422,815 |
| | San Vicente | 2.47 | 226,885 |
| | Sansinena | 2.56 | 139,140 |
| | Santa Clara Avenue | 3.49 | 44,356 |
| | Santa Fe Springs | 10.50 | 939,517 |
| | Santa Maria Valley | 5.15 | 203,347 |
| | Santa Susana | 2.93 | 13,936 |
| | Sargent | 3.98 | 26,784 |

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| | | | |
|----------------|--------------------|-------|------------|
| | Saticoy | 3.33 | 34,119 |
| | Sawtelle | 3.18 | 187,851 |
| | Seal Beach | 5.08 | 420,447 |
| | Semitropic | 3.48 | 35,096 |
| | Sespe | 2.79 | 404,945 |
| | Shafter, North | 3.01 | 598,178 |
| | Shiells Canyon | 3.38 | 72,929 |
| | South Mountain | 3.31 | 641,600 |
| | Stockdale | 2.13 | 127,532 |
| | Tapia | 7.55 | 18,789 |
| | Tapo Canyon, South | 2.92 | 9,800 |
| | Tejon | 6.49 | 365,138 |
| | Tejon Hills | 6.47 | 12,846 |
| | Tejon, North | 3.14 | 34,268 |
| | Temescal | 2.75 | 69,640 |
| | Ten Section | 6.60 | 79,708 |
| | Timber Canyon | 2.99 | 27,589 |
| | Torrance | 4.49 | 364,790 |
| | Torrey Canyon | 2.73 | 124,284 |
| | Union Avenue | 3.57 | 5,288 |
| | Ventura | 4.61 | 4,746,716 |
| | Wayside Canyon | 1.67 | 27,229 |
| | West Mountain | 2.84 | 9,579 |
| | Wheeler Ridge | 4.28 | 102,447 |
| | White Wolf | 1.88 | 11,658 |
| | Whittier | 2.42 | 96,315 |
| | Wilmington | 7.02 | 13,660,268 |
| | Yowlumne | 10.62 | 101,829 |
| | Zaca | 8.16 | 232,480 |
| US Federal OCS | Beta | 1.71 | 2,036,833 |
| | Carpinteria | 2.85 | 355,145 |
| | Dos Cuadras | 4.00 | 908,709 |
| | Hondo | 5.54 | 1,959,967 |
| | Hueneme | 3.04 | 115,165 |
| | Pescado | 5.72 | 994,848 |
| | Point Arguello | 14.23 | 569,983 |
| | Point Pedernales | 9.38 | 1,890,073 |
| | Sacate | 3.59 | 935,703 |

June 23, 2016

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|--|-------------|------|---------|
| | Santa Clara | 2.47 | 823,404 |
| | Sockeye | 8.35 | 638,669 |

*All California fields that produced at least 10,000 bbls during, 2013, 2014, or 2015