The Dirty Oil Index

Facts on the fight for our future Big Oil is bringing to California

Ratio of estimated global subsidies for fossil fuels to those for renewable energy[a]	12 : 1
Rank of petroleum among U.S. primary energy sources causing climate pollution[b]	1
Number of the last 11 U.S. recessions that were preceeded by sharply rising oil prices[c]	10
Rank of oil refining among climate-polluting industries causing the greatest health risk from particulate matter emissions in California's low-income communities of color[d]	1
Rank of refining among 79 California business sectors for jobs per dollar gross revenue[e]	79
Ranks of the five major San Francisco Bay Area refineries among the 145 largest industrial sources of criteria air pollutant emissions in the region[f]	1, 2, 3, 4, 6
Estimated number of premature deaths related to air pollution in the Bay Area annually[g]	2,800
Tons of CO_2 emitted by industry in Richmond, CA per ton emitted by vehicle tailpipes[h]	11
Percentage of criteria air pollution from industry in Richmond emitted by one refinery[f]	87%
Year community-based research linked disparately high and unhealthful air pollution inside Richmond homes to heavy oil burning at the Richmond refinery and port[i]	2009
Year a California appeals court found that a Richmond refinery environmental review illegally concealed a potential switch to heavier, dirtier crude oil[j]	2010
Rank of crude oil quality among factors causing U.S. refineries to burn more fuel[k]	1
Factor by which refining dirtier crude increased selenium discharged per barrel refined[m]	10
Year Gulf Coast and Bay Area studies linked dirtier crude to refinery flare emissions[n]	2008
Factor by which the sulfur level in dirty crude can exceed that in conventional crude[p]	10
Factor by which the mercury level can[q]	1,000
Percent increase in refinery CO_2 emissions documented from dirtier crude as of 2011[k]	+56%
Projected percentage increase in refinery CO_2 emissions from a switch to "heavy oil"[k]	+100%
From a switch to refining "natural bitumen" oil derived from tar sands[k]	+200%
Years total-in-place tar sands oil deposits[p] could supply 2012 world refining capacity[r]	170
Rank of the U.S. among the world's largest oil refining countries[r]	1
Rank of California among the largest U.S. refining states west of the Rocky Mountains[r]	1
Projected growth in Canadian tar sands oil extraction from 2010–2025, as a percentage of total current California refining capacity[s]	108%
Number of oil pipelines proposed to run from the tar sands region in Canada to Pacific ports that would be closer to California than any current source of its crude oil imports[s]	4
Number of other countries that supplied crude shipments heavy enough to be classified as "heavy oil" by the U.S. Geological Survey to California refineries during 2010[p,t,k]	8
Year the Bay Area Air Quality Management District says it will begin to consider developing the nation's first policy on emissions from refining dirtier oil[u]	2012

Communities for a Better Environment (CBE)

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May 2012

Notes: see next page for data sources

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Data sources

(a) Hoffert, 2010. *Science* 329: 1292–1294. DOI: 10.1126/science.1195449.

(b) U.S. Energy Information Administration (USEIA), 2012. *Annual Energy Overview;* Table 18. Carbon dioxide emissions by sector and source; www.eia.gov/forecasts/aeo/er/tables_ref.cfm.

(c) *Deep water: The Gulf Oil Disaster and the Future of Offshore Oil Drilling; Report to the President;* National Commission on the BP Deepwater Horizon Oil Spill & Offshore Oil Drilling, January 2011.

(d) Pastor et al., 2010. *Minding the Climate Gap* http://college.usc.edu/pere/publications.

(e) U.S. Economic Census: paid employees/$ sales, shipments, receipts, revenue, or other business done; see also CBE's *Big Oil, little jobs: Green Energy, more jobs* fact sheet (www.cbecal.org).

(f) *Base year 2008 Bay Area emissions inventory summary report;* BAAQMD, 2011. Bay Area Air Quality Management District: San Francisco, CA; Combined emissions of PM_{10}, ROG, NO_x, SO_2 from "major emitting facilities" (see pp. 24–26).

(g) *Bay Area 2010 Clean Air Plan;* BAAQMD, 2010. Bay Area Air Quality Management District: San Francisco, CA; see vol I, executive summary, key findings.

(h) City of Richmond, 2005. *Greenhouse Gas Emission Inventory*; and California Air Resources Board, 2012. *Mandatory GHG emission reporting public report;* Chevron Richmond refinery data for 2009.

(i) Brody et al., 2009. *Am. J. Public Health* 99(S3): S600–S609. DOI: 10.2105/AJPH.2008.149088.

(j) *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70. A125618.

(k) Karras, 2010. *Environ. Sci. Technol.* 44: 9584–9589. DOI: 10.1021/es1019965; Union of Concerned Scientists, 2011. UCS: Berkeley, CA; www.ucsusa.org/assets/documents/global_warming/oil-refinery-CO2-performance.pdf

(m) CBE, 1994. *Dirty Crude;* Report No. 94–1. Communities for a Better Environment: Oakland, CA.

(n) June 5, 2008 expert report of G. Karras; EIR SCH #2005072117; City of Richmond: Richmond, CA.

(p) Meyer et al., 2007. USGS Open-File Report 2007–1084. http://pubs.usgs.gov/of/2007/1084/.

(q) Wilhelm et al., 2007. *Environ. Sci. Technol.* 41(13): 4509–4514. DOI: 10.1021/es062742j.

(r) Oil & Gas Journ. 2012. *Worldwide Refining Survey;* www.ogj.com/index/ogj-survey-downloads.html.

(s) Canadian Association of Petroleum Producers, 2011. *Crude oil forecast, markets & pipelines;* see tables 2.2 and 4.4 and page 16.

(t) USEIA, 2012. *Company level imports;* www.eia.gov/petroleum/imports/companylevel/archive.

(u) Personal communications between various CBE staff and BAAQMD officials, various dates.