

Summary of coal production entered on entity worksheets

Richard Heede
Climate Mitigation Services
[22-May-13]

Copyright Climate Mitigation Services

Coal

| 1850s | | | | | | | | | | 1860s | | | | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|
| 1850 | 1851 | 1852 | 1853 | 1854 | 1855 | 1856 | 1857 | 1858 | 1859 | 1860 | 1861 | 1862 | 1863 | 1864 | 1865 | 1866 | 1867 | 1868 | 1869 | 1870 | 1871 |

- 1 Alpha Natural Resources, USA
- 2 Anglo American, UK
- 3 Arch Coal Company, USA
- 4 British Coal Corporation, UK
- 5 BP Coal, UK
- 6 BHP Billiton, Australia
- 7 China, Peoples Republic
- 8 Coal India, India
- 9 ConocoPhillips, USA
- 10 Consol Energy, USA
- 11 Cyprus Amax, USA
- 12 Czechoslovakia
- 13 Czech Republic + Slovakia
- 14 ExxonMobil, USA
- 15 FSU (Former Soviet Union)
- 16 Kazakhstan
- 17 Kerr-McGee Coal (Anadarko), USA
- 18 Kiewit Mining Group, USA
- 19 Luminant, USA
- 20 Massey Energy, USA
- 21 Murray Coal, USA
- 22 North American Coal Corp., USA
- 23 North Korea
- 24 Occidental, USA
- 25 Peabody Energy, USA
- 26 Pittsburgh & Midway Coal (Chevron)
- 27 Poland
- 28 Rio Tinto, Australia
- 29 RAG (Ruhrkohle AG), Germany
- 30 Russian Federation (not including FSU)
- 31 RWE, Germany
- 32 Sasol, South Africa
- 33 Singareni Collieries Company, India
- 34 UK Coal, UK
- 35 Ukraine
- 36 Westmoreland Coal, USA
- 37 Xstrata, Switzerland

0.03 0.05 0.1 0.1 0.1 0.2 0 0

0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.3 0.3 0.4

Annual coal prod'n by identified entities:

0 1 1

Annual world coal prod'n 1960-2010

182

Percent identified prod'n of global prod'n

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22-May-13

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| 2 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 1870s | | | | | | | | 1880s | | | | | | | | 1890s | | | | | | | | |
| 9 | 1872 | 1873 | 1874 | 1875 | 1876 | 1877 | 1878 | 1879 | 1880 | 1881 | 1882 | 1883 | 1884 | 1885 | 1886 | 1887 | 1888 | 1889 | 1890 | 1891 | 1892 | 1893 | 1894 | 1895 | 1896 |

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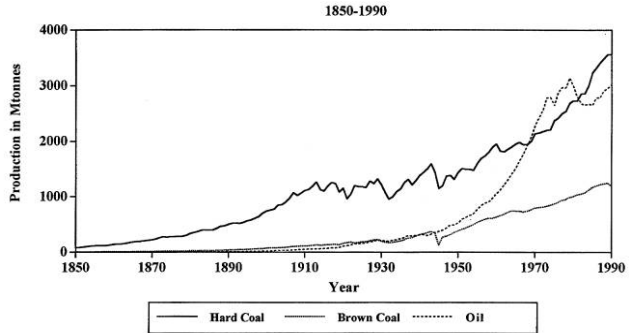


Fig. 1. Comparison of global production of anthracite and bituminous hard coal, brown coal, and oil.

Lefohn A.S., Husar J.D., and Husar R.B. (1999). Estimating Historical Anthropogenic Global Sulfur Emission Patterns for the Period 1850-1990. Atmospheric Environment. 33(21):3435-3444.
Contact: A.S.L. & Associates 302 North Last Chance Gulch Suite 410 Helena, Montana 59601 406-443-3389 asl@asl-associates.com

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| 1 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 1900s | | | | | | | | | | | | 1910s | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 1897 | 1898 | 1899 | 1900 | 1901 | 1902 | 1903 | 1904 | 1905 | 1906 | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | | | | | | | | | | | | | | | | | |
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| 1 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | | | | |
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| 4 | Richard Heede Climate Mitigation Services | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | [22-May-13] | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 1920s | | | | | | | | 1930s | | | | | | | | 1940s | | | | | | | | |
| 9 | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 |
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| 31 | 11 | 11 | 11 | 11 | 12 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 8 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
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| 41 | 13 | 16 | 20 | 23 | 26 | 30 | 33 | 37 | 40 | 50 | 71 | 87 | 111 | 109 | 126 | 127 | 133 | 165 | 197 | 222 | 247 | 139 | 127 | 147 | 161 |
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| 65 | 29 | 30 | 30 | 31 | 32 | 32 | 33 | 33 | 34 | 35 | 35 | 36 | 36 | 37 | 37 | 38 | 38 | 42 | 45 | 48 | 52 | 55 | 59 | 62 | 66 |
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| 83 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
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| 87 | 57 | 62 | 66 | 71 | 75 | 79 | 83 | 86 | 89 | 99 | 119 | 136 | 162 | 160 | 179 | 182 | 222 | 258 | 293 | 322 | 351 | 247 | 243 | 275 | 304 |
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| | DI | DJ | DK | DL | DM | DN | DO | DP | DQ | DR | DS | DT | DU | DV | DW | DX | DY | DZ | EA | EB | EC | ED | EE | EF | EG |
|----|--|------|------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Richard Heede Climate Mitigation Services [22-May-13] | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 1940s | | | | | 1950s | | | | | | | | | | 1960s | | | | | | | | | |
| 9 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 |
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| 15 | 10 | 11 | 11 | 11 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 19 | 18 | 17 | 15 | 12 | 13 | 14 |
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| 19 | 200 | 207 | 213 | 220 | 221 | 222 | 223 | 224 | 225 | 220 | 214 | 208 | 202 | 197 | 195 | 192 | 190 | 188 | 186 | 178 | 169 | 161 | 153 | 145 | 141 |
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| 25 | 23 | 32 | 41 | 49 | 58 | 66 | 110 | 154 | 198 | 242 | 131 | 329 | 373 | 417 | 249 | 249 | 272 | 290 | 299 | 327 | 227 | 299 | 361 | 466 | 469 |
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| 31 | 19 | 20 | 21 | 22 | 23 | 24 | 26 | 27 | 29 | 31 | 33 | 35 | 37 | 39 | 41 | 43 | 45 | 47 | 49 | 50 | 52 | 54 | 55 | 58 | 50 |
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| 35 | 22 | 21 | 20 | 22 | 28 | 34 | 41 | 47 | 53 | 60 | 66 | 72 | 78 | 85 | 92 | 97 | 102 | 104 | 101 | 101 | 97 | 100 | 106 | 110 | 113 |
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| 41 | 175 | 205 | 236 | 274 | 281 | 300 | 353 | 403 | 431 | 473 | 511 | 547 | 558 | 566 | 563 | 571 | 587 | 611 | 637 | 646 | 657 | 656 | 590 | 585 | 603 |
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| 59 | 4 | 5 | 5 | 6 | 7 | 5 | 5 | 6 | 8 | 9 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 19 | 20 | 21 | 22 | 24 | 28 | 27 | 21 |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 3 | 5 | 6 | 7 | 12 | 10 | 7 | 8 | 10 | 20 | 21 | 20 | 23 | 26 | 27 | 30 | 36 | 42 | 44 | 49 | 51 | 52 | 54 | 62 | 51 |
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| 65 | 69 | 73 | 76 | 81 | 84 | 87 | 90 | 94 | 97 | 100 | 104 | 107 | 110 | 114 | 117 | 121 | 128 | 138 | 141 | 146 | 148 | 156 | 166 | 173 | 180 |
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| 77 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 5 | 5 |
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| 83 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 11 | 10 | 8 |
| 84 | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 86 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 87 | 536 | 587 | 641 | 705 | 738 | 774 | 883 | 991 | 1,084 | 1,187 | 1,124 | 1,366 | 1,433 | 1,500 | 1,343 | 1,366 | 1,425 | 1,488 | 1,621 | 1,671 | 1,576 | 1,665 | 1,691 | 1,808 | 1,804 |
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| | EH | EI | EJ | EK | EL | EM | EN | EO | EP | EQ | ER | ES | ET | EU | EV | EW | EX | EY | EZ | FA | FB | FC | FD | FE | | | |
|----|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------|----|----|----|
| 1 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Richard Heede Climate Mitigation Services [22-May-13] | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 8 | 1970s | | | | | | | 1980s | | | | | | | | | | 1990s | | | | | | | | | |
| 9 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | | | |
| 10 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | |
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| 15 | 16 | 17 | 19 | 20 | 23 | 27 | 33 | 43 | 48 | 51 | 52 | 54 | 60 | 60 | 69 | 70 | 76 | 76 | 74 | 71 | 68 | 70 | 69 | 64 | | | |
| 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | 11 | 13 | 12 | 12 | 11 | 12 | 11 | 24 | 26 | 29 | 29 | 36 | 39 | 37 | 41 | 46 | 53 | 56 | 55 | 54 | 57 | 56 | 63 | | | |
| 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | 137 | 133 | 130 | 126 | 121 | 121 | 120 | 123 | 127 | 124 | 121 | 105 | 43 | 105 | 103 | 100 | 104 | 94 | 92 | 91 | 77 | 56 | 32 | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | 10 | 10 | 9 | 8 | 9 | 9 | 7 | 28 | 21 | 21 | 21 | 21 | 27 | 27 | 28 | 27 | 26 | 26 | | | | | | no data 1995 | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 8 | 7 | 9 | 11 | 13 | 18 | 35 | 40 | 39 | 37 | 40 | 39 | 42 | 46 | 52 | 54 | 59 | | | |
| 24 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 476 | 472 | 497 | 517 | 532 | 550 | 618 | 633 | 620 | 622 | 666 | 715 | 789 | 872 | 894 | 928 | 980 | 1,054 | 1,080 | 1,084 | 1,115 | 1,189 | 1,277 | 1,389 | | | |
| 26 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | 71 | 77 | 89 | 92 | 88 | 89 | 91 | 96 | 107 | 112 | 118 | 128 | 132 | 143 | 157 | 166 | 176 | 180 | 207 | 217 | 216 | 221 | 231 | | | |
| 28 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | coal produced by Consolidation Group or Conoco Mining when owned and operated by Conoco and/or DuPont from 1966 to 1998 is attributed to CONSOL Energy | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | 59 | 55 | 47 | 50 | 51 | 44 | 38 | 45 | 44 | 38 | 43 | 38 | 42 | 39 | 38 | 48 | 50 | 49 | 50 | 51 | 41 | 64 | 63 | | | | |
| 32 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | 15 | 15 | 18 | 20 | 22 | 26 | 27 | 31 | 37 | 32 | 35 | 36 | 38 | 35 | 32 | 45 | 46 | 48 | 55 | 56 | 54 | 24 | 69 | 69 | | | |
| 34 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 108 | 109 | 111 | 115 | 118 | 121 | 124 | 124 | 121 | 119 | 121 | 124 | 125 | 125 | 125 | 124 | 122 | 116 | 103 | 96 | 91 | | | | | | |
| 36 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | | | | | | | | 89 | 81 | 78 | | | |
| 39 | 4 | 6 | 7 | 8 | 10 | 11 | 13 | 14 | 15 | 17 | 18 | 21 | 23 | 27 | 29 | 33 | 35 | 40 | 43 | 43 | 34 | 33 | 33 | 15 | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 670 | 668 | 684 | 701 | 712 | 722 | 724 | 719 | 716 | 701 | 713 | 707 | 712 | 726 | 751 | 760 | 772 | 740 | 800 | 637 | | | | | | | |
| 42 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | | | | | | | | 127 | 112 | 105 | 84 | | |
| 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | 5 | 10 | 11 | 12 | 14 | 15 | 14 | 14 | 14 | 16 | 16 | 18 | 20 | 19 | 25 | 28 | | |
| 47 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 16 | 14 | 15 | 15 | 18 | 14 | 14 | 13 | | |
| 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | 8 | 16 | 23 | 25 | 27 | 25 | 26 | 27 | 27 | 26 | 26 | 27 | 28 | 26 | 27 | 25 | 23 | 24 |
| 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 10 | 10 | 9 | 9 | 10 | 8 | 7 | 10 | 12 | 11 | 13 | 13 | 17 | 20 | 22 | 19 | 20 | 20 | 20 | 21 | 22 | 24 | 25 | 24 | | | |
| 56 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 59 | 21 | 21 | 19 | 18 | 16 | 15 | 12 | 18 | 18 | 18 | 19 | 13 | 11 | 13 | 15 | 17 | 18 | 18 | 17 | 16 | 15 | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 65 | 63 | 62 | 66 | 64 | 59 | 48 | 58 | 54 | 47 | 52 | 48 | 58 | 56 | 61 | 76 | 78 | 83 | 89 | 100 | 111 | 121 | 132 | 141 | | | |
| 62 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 9 | 15 | 13 | 11 | 12 | 12 | 12 | 12 | 11 | 12 | 14 | 14 | 15 | 18 | 18 | 16 | | | |
| 64 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 196 | 196 | 202 | 211 | 219 | 227 | 234 | 239 | 230 | 199 | 227 | 234 | 242 | 249 | 259 | 266 | 266 | 249 | 215 | 209 | 198 | 198 | 200 | 200 | | | |
| 66 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 67 | 3 | 3 | 3 | 13 | 14 | 14 | 14 | 18 | 19 | 22 | 18 | 18 | 19 | 24 | 35 | 38 | 39 | 43 | 52 | 54 | 41 | 46 | 66 | 68 | | | |
| 68 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 73 | 94 | 104 | 110 | 108 | 110 | 110 | 108 | 117 | 117 | 119 | 116 | 116 | 120 | 115 | 112 | 106 | 103 | 104 | 103 | 106 | 109 | 101 | 100 | 100 | | | |
| 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 5 | 5 | 5 | 5 | 5 | 6 | 7 | 8 | 13 | 17 | 28 | 33 | 35 | 35 | 35 | 35 | 35 | 37 | 37 | 37 | 39 | 40 | 41 | 43 | | | |
| 76 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 77 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 10 | 11 | 12 | 12 | 15 | 15 | 17 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | | | |
| 78 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83 | 8 | 8 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 9 | 10 | 9 | 11 | 11 | 11 | 6 | | |
| 84 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 87 | 1,921 | 2,004 | 2,053 | 2,131 | 2,172 | 2,213 | 2,286 | 2,399 | 2,450 | 2,436 | 2,556 | 2,597 | 2,698 | 2,892 | 2,984 | 3,077 | 3,194 | 3,282 | 3,324 | 3,191 | 3,129 | 3,077 | 3,177 | 3,269 | | | |
| 88 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | 3,118 | 3,127 | 3,180 | 3,325 | 3,414 | 3,478 | 3,549 | 3,725 | 3,794 | 3,832 | 3,975 | 4,008 | 4,234 | 4,389 | 4,496 | 4,596 | 4,700 | 4,770 | 4,800 | 4,514 | 4,451 | 4,332 | 4,399 | 4,525 | | | |
| 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 91 | 61.6% | 64.1% | 64.6% | 64.1% | 63.6% | 63.6% | 64.4% | 64.4% | 64.6% | 63.6% | 64.3% | 64.8% | 63.7% | 65.9% | 66.4% | 67.0% | 67.9% | 68.8% | 69.2% | 70.7% | | | | | | | |

| | FF | FG | FH | FI | FJ | FK | FL | FM | FN | FO | FP | FQ | FR | FS | FT | FU | FV | FW | FX | FY | | |
|----|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|----|----|---|-------------|------|---|
| 1 | Summary of coal production entered on entity worksheets | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | dataset marker | | | | | | | | | | | | | | | | | | | | | |
| 5 | Richard Heede Climate Mitigation Services 22-May-13 | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Y sums checked and auto-linked to entity coal production worksheets | | | | | | | | | | | | | | | | | | | | | |
| 8 | 1990s | | | | | | | | | | | | | | 2000s | | | | | Sum to 2010 | Coal | # |
| 9 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Million tonnes | | | | | | |
| 10 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 54 | 58 | 59 | 64 | 81 | 73 | 79 | 87 | 87 | 84 | 77 | 75 | 879 | | | Alpha Natural Resources, USA | 1 | | |
| 13 | | | | | | | | | | | | | | | | 2,963 | | | Anglo American, UK | 2 | | |
| 14 | | | | | | | | | | | | | | | | 2,550 | | | Arch Coal Company, USA | 3 | | |
| 15 | 67 | 72 | 79 | 83 | 73 | 78 | 80 | 87 | 90 | 91 | 92 | 93 | 99 | 97 | 99 | 7,275 | | | British Coal Corporation | 4 | | |
| 16 | | | | | | | | | | | | | | | | 431 | | | BP Coal, UK | 5 | | |
| 17 | 65 | 66 | 96 | 120 | 129 | 145 | 139 | 135 | 112 | 127 | 122 | 122 | 127 | 114 | 148 | 2,345 | | | BHP Billiton, Australia | 6 | | |
| 18 | | | | | | | | | | | | | | | | 54,476 | | | China, Peoples Republic | 7 | | |
| 19 | see UK Coal | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | 8,052 | | | Coal India, India | 8 | | |
| 21 | 0-2001; see BP worksheet | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | 6 | 7 | | | | | | | | | - | | | ConocoPhillips (see CONSOL Energy) | 9 | | |
| 23 | 72 | 85 | 98 | 111 | 125 | 127 | 115 | 118 | 124 | 125 | 121 | 125 | 116 | 103 | 104 | 3,454 | | | CONSOL Energy, USA | 10 | | |
| 24 | | | | | | | | | | | | | | | | 1,084 | | | Cyprus Amax, USA | 11 | | |
| 25 | 1,396 | 1,360 | 1,283 | 1,204 | 1,154 | 1,275 | 1,407 | 1,691 | 2,086 | 2,269 | 2,335 | 2,523 | 2,800 | 3,050 | 3,321 | 4,460 | | | Czechoslovakia | 12 | | |
| 26 | | | | | | | | | | | | | | | | 1,250 | | | Czech Republic + Slovakia | 13 | | |
| 27 | 250 | 258 | 260 | 261 | 268 | 280 | 291 | 306 | 324 | 343 | 361 | 379 | 404 | 431 | 431 | 619 | | | Exxon Mobil | 14 | | |
| 28 | | | | | | | | | | | | | | | | 29,051 | | | FSU (Former Soviet Union) | 15 | | |
| 29 | | | | | | | | | | | | | | | | 1,715 | | | Kazakhstan | 16 | | |
| 30 | 64 | 66 | 66 | 63 | 63 | 67 | 60 | 55 | 61 | 63 | 61 | 59 | 59 | 52 | 57 | 299 | | | Kerr-McGee Coal (Anadarko), USA | 17 | | |
| 31 | | | | | | | | | | | | | | | | 671 | | | Kiewit Mining Group, USA | 18 | | |
| 32 | 68 | 74 | 23 | | | | | | | | | | | | | 804 | | | Luminant, USA | 19 | | |
| 33 | | | | | | | | | | | | | | | | 811 | | | Massey Energy Corporation | 20 | | |
| 34 | | | | | | | | | | | | | | | | 301 | | | Murray Coal Corporation, USA | 21 | | |
| 35 | | | | | | | | | | | | | | | | 905 | | | North American Coal Corp., USA | 22 | | |
| 36 | | | | | | | | | | | | | | | | 1,199 | | | North Korea | 23 | | |
| 37 | 80 | 77 | 71 | 63 | 69 | 70 | 67 | 67 | 65 | 65 | 65 | 65 | 63 | 59 | 58 | 688 | | | Occidental, USA | 24 | | |
| 38 | | | | | | | | | | | | | | | | 5,341 | | | Peabody Energy, USA | 25 | | |
| 39 | 14 | 14 | 14 | 15 | 15 | 11 | 3 | | | | | | | | | 504 | | | Pittsburgh & Midway Coal (Chevron) | 26 | | |
| 40 | | | | | | | | | | | | | | | | 11,959 | | | Poland | 27 | | |
| 41 | | | | | | | | | | | | | | | | 2,697 | | | Rio Tinto, Australia | 28 | | |
| 42 | 78 | 73 | 71 | 60 | 77 | 79 | 74 | 85 | 87 | 87 | 96 | 98 | 111 | 102 | 111 | 631 | | | Ruhrkohle AG (RAG), Germany | 29 | | |
| 43 | | | | | | | | | | | | | | | | 5,027 | | | Russian Federation (not including FSU) | 30 | | |
| 44 | 28 | | | | | | | | | | | | | | | 4,717 | | | RWE, Germany | 31 | | |
| 45 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 12 | 28 | 26 | 21 | 34 | 32 | 30 | 30 | 1,329 | | | Sasol, South Africa | 32 | | |
| 46 | | | | | | | | | | | | | | | | 978 | | | Singareni Collieries Company, India | 33 | | |
| 47 | 26 | 26 | 26 | 26 | 24 | 21 | 21 | 22 | 22 | 22 | 21 | 20 | 21 | 21 | 25 | 300 | | | UK Coal, UK | 34 | | |
| 48 | 29 | 31 | 34 | 35 | 37 | 41 | 40 | 37 | 37 | 38 | 35 | 36 | 37 | 33 | 34 | 1,266 | | | Ukraine | 35 | | |
| 49 | 29 | 31 | 34 | 35 | 37 | 41 | 40 | 37 | 37 | 38 | 35 | 36 | 37 | 33 | 34 | 878 | | | Westmoreland Coal, USA | 36 | | |
| 50 | 10 | 11 | 12 | 13 | 15 | 14 | 18 | 18 | 20 | 18 | 19 | 25 | 24 | 23 | 22 | 828 | | | Xstrata, Switzerland | 37 | | |
| 51 | | | | | | | | | | | | | | | | | | | | | | |
| 52 | 24 | 26 | 29 | 28 | 29 | 28 | 31 | 32 | 31 | 31 | 32 | 31 | 30 | 31 | 31 | | | | | | | |
| 53 | 28 | 27 | 25 | 28 | 30 | 31 | 29 | 30 | 32 | 35 | 35 | 30 | 32 | 38 | 38 | | | | | | | |
| 54 | | | | | | | | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | | | | | | | | |
| 56 | 146 | 155 | 162 | 168 | 160 | 176 | 180 | 184 | 206 | 218 | 225 | 214 | 232 | 221 | 223 | 162,736 | | | Coal prod'n by identified entities 1865-2010 | | | |
| 57 | | | | | | | | | | | | | | | | 243,775 | | | World coal prod'n 1950-2010, million tonnes (EIA) | | | |
| 58 | 14 | 14 | 20 | 14 | 12 | 15 | 13 | 11 | 9 | 9 | 11 | 11 | 10 | 9 | 7 | 67.5% | | | % identified of global coal prod'n 1960-2010 | | | |
| 59 | 201 | 201 | 178 | 171 | 163 | 163 | 162 | 163 | 162 | 159 | 155 | 145 | 143 | 135 | 132 | | | | | | | |
| 60 | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 69 | 84 | 114 | 139 | 132 | 149 | 149 | 149 | 157 | 154 | 162 | 156 | 161 | 140 | 73 | | | | | | | |
| 62 | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 39 | 37 | 39 | 39 | 38 | 37 | 35 | 34 | | | | | | | | | | | | | | |
| 64 | 240 | 229 | 219 | 235 | 240 | 238 | 238 | 257 | 259 | 283 | 285 | 289 | 305 | 297 | 311 | | | | | | | |
| 65 | | | | | | | | | | | | | | | | | | | | | | |
| 66 | 102 | 98 | 94 | 93 | 94 | 96 | 98 | 98 | 100 | 99 | 98 | 113 | 108 | 102 | 102 | | | | | | | |
| 67 | | | | | | | | | | | | | | | | | | | | | | |
| 68 | 44 | 48 | 49 | 51 | 51 | 52 | 51 | 52 | 48 | 46 | 43 | 43 | 39 | 39 | 43 | | | | | | | |
| 69 | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 25 | 27 | 27 | 28 | 30 | 31 | 33 | 34 | 35 | 36 | 38 | 41 | 45 | 50 | 51 | | | | | | | |
| 71 | | | | | | | | | | | | | | | | | | | | | | |
| 72 | 35 | 32 | 26 | 23 | 21 | 22 | 22 | 19 | 14 | 10 | 10 | 8 | 8 | 7 | 7 | | | | | | | |
| 73 | | | | | | | | | | | | | | | | | | | | | | |
| 74 | 57 | 59 | 60 | 63 | 62 | 62 | 62 | 64 | 60 | 60 | 62 | 59 | 60 | 55 | 55 | | | | | | | |
| 75 | | | | | | | | | | | | | | | | | | | | | | |
| 76 | 4 | 6 | 6 | 5 | 24 | 18 | 23 | 25 | 26 | 27 | 27 | 27 | 26 | 22 | 27 | | | | | | | |
| 77 | | | | | | | | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | | | | | | | | |
| 81 | | | | | | | | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | | | | | | | | |
| 86 | | | | | | | | | | | | | | | | | | | | | | |
| 87 | 3,289 | 3,270 | 3,237 | 3,249 | 3,246 | 3,438 | 3,595 | 3,933 | 4,327 | 4,581 | 4,697 | 4,916 | 5,260 | 5,423 | 5,692 | 162,736 | | | Coal prod'n by identified entities 1865-2010 | | | |
| 88 | | | | | | | | | | | | | | | | 243,775 | | | World coal prod'n 1950-2010, million tonnes (EIA) | | | |
| 89 | 4,594 | 4,677 | 4,685 | 4,568 | 4,663 | 4,888 | 4,938 | 5,222 | 5,497 | 5,936 | 6,243 | 6,489 | 6,727 | 6,947 | 7,216 | 67.5% | | | % identified of global coal prod'n 1960-2010 | | | |
| 90 | | | | | | | | | | | | | | | | | | | | | | |
| 91 | 71.6% | 69.9% | 69.1% | 71.1% | 69.6% | 70.3% | 72.8% | 75.3% | 78.7% | 77.2% | 75.2% | 75.8% | 78.2% | 78.1% | 78.9% | | | | | | | |
| 92 | | | | | | | | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | | | | | | | | |
| 94 | Total coal production by identified entities through 2010 (million tonnes) | | | | | | | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | | | | | | | | |

145,622 Y Sum identified primary coal prod'n 1960-2010
 215,789 Y Sum global primary coal prod'n 1960-2010
 67.5% Y Percent identified of global 1960-2010

Cell: FX21

Comment: Rick Heede:

BP's share of the acquired ARCO coal interests are allocated to Arch Coal, which acquired ARCO's coal operations in 1998. CSM has attributed Sohio (Amoco) coal production from 1960 to 1979 and BP coal from 1979 to 1989 (partial production histories).

Cell: B25

Comment: Rick Heede:

EIA, International Energy 2003. Chinese coal is approx. 75% bituminous coal, 20% anthracite and 4% lignite

Cell: FT25

Comment: Rick Heede:

CMS has also documented the coal production of China Coal Energy Company Ltd, Beijing, whose production 2005-2010 totaled 487 Mt coal. WE do not list this company's production since coal production for PR China is shown in full here.

Cell: B27

Comment: Rick Heede:

Preliminary estimate based on flimsy quote (see dBase): "The only other major producer outside of CIL, is the Singareni Collieries Company that is located in Andhra Pradesh. Singareni contributes about 7-8 % of India's overall coal production, amounting to approximately 20 Mt each year." Thus if 20 Mt = (say) 8 percent and CIL = (say) 88 percent, then CIL is 11 x 20 Mt = 220 Mt coal. No adjustment here for lignite coal.

However, total Indian coal production was 385 Mshtons in 2001 = 349 Mt (=204 MTC).

Cell: FX27

Comment: Rick Heede:

Preliminary estimate based on attributing 88 percent of India's total coal production to Coal India Ltd (CIL) and 8 percent to Singareni Collieries. See each worksheet for details.

Cell: FX29

Comment: Rick Heede:

Conoco acquired Consolidation Coal Company in 1966, DuPont acquired an ownership interest in Conoco in 1981, Rheinbraun acquired Consolidation Group from DuPont in 1998. Renamed CONSOL Energy in 1999.

CMS attributes all coal production from 1864 to 2008 to CONSOL Energy.

Cell: FX31

Comment: Rick Heede (Feb10):

CONSOL Energy produces bituminous coal and coal-bed methane (CBM). CONSOL Energy has its roots in Consolidation Coal Company (established in 1864 in Cumberland, MD). Consolidation Coal merged with Pittsburgh Coal in 1945, and was acquired by Continental Oil Company (Conoco) in 1966, which was itself acquired by DuPont in 1981. Sold to Rheinbraun/RWE in 1998. Renamed CONSOL Energy in 1999.

CMS attributes all historical production to CONSOL Energy, and removes attribution to Conoco and DuPont 1966-1998.

Note: CONSOL Energy estimates total coal production 1864-1964 at ~ 1 billion tons, whereas our estimate for the same period is 1.19 billion tons -- due to necessity of interpolating between known production in years 1864-1865, 1900, 1903, 1927, 1933-1935, 1952, and 1968. See CONSOL worksheet for details.

Cell: B41

Comment: Rick Heede:

EIA, International Energy 2003. Coal from the former Soviet Union was approx. 22% lignite, 69% bituminous and 10% anthracite. (based on 1992-2002 average production by type divided by total production 1992-2002 of all types.)

Cell: B43

Comment: Rick Heede:

EIA, International Energy 2003. Coal from Kazakhstan is approx. 96% bituminous and 4% lignite. (based on 1980-1991 average production by type divided by total production 1980-1991 of all types.)

Cell: FT63

Comment: Rick Heede:

Chevron selling coal interests in 2011

Cell: B65

Comment: Rick Heede:

EIA, International Energy 2003. Polish coal is approx. 29% lignite, 71% bituminous and less than 1% anthracite coal. (based on 1980-2002 average production by type divided by total production 1980-2002 of all types.)

Cell: B81

Comment: Rick Heede:

EIA, International Energy 2003. Ukraine coal is approx. 74% bituminous, 21% anthracite, 3% lignite. (based on 1992-2002 average production by type divided by total production 1992-2002 of all types.)

Cell: B85

Comment: Rick Heede:

Xstrata plc's acquisition of Glencore International AG's Australian and South African coal business in March 2002 and its acquisition of M.I.M. Holdings in June 2003. Today Xstrata Coal has interests in over thirty coal mines located in Australia and South Africa and employs around 10,000 people, including contractors.

Cell: FX85

Comment: Rick Heede:

Xstrata plc's acquisition of Glencore International AG's Australian and South African coal business in March 2002 and its acquisition of M.I.M. Holdings in June 2003. Today Xstrata Coal has interests in over thirty coal mines located in Australia and South Africa and employs around 10,000 people, including contractors.

Cell: B89

Comment: Rick Heede:

Energy Information Administration (2005) International Energy Annual 2003, Table 2.5 World Coal Production (data converted from short tons to metric tonnes), US DOE, Washington, DC; www.eia.doe.gov

Cell: AE89

Comment: Rick Heede:

Data for 1865, 1900, 1920, 1940, and 1950 from Peach and Constantin (1972) Zimmerman's World Industries and Resources, 3rd edition, page 364. In million tonnes per year.

Data: 1865: 182 million tonnes; 1900: 767 million tonnes; 1200: 1,319 million tonnes; 1940: 1,799 million tonnes; 1950: 1,805 million tonnes.

Cell: DB89

Comment: Rick Heede:

Data for 1865, 1900, 1920, 1940, and 1950 from Peach and Constantin (1972) Zimmerman's World Industries and Resources, 3rd edition, page 364. In million tonnes per year.

Cell: DL89

Comment: Rick Heede:

Data for 1865, 1900, 1920, 1940, and 1950 from Peach and Constantin (1972) Zimmerman's World Industries and Resources, 3rd edition, page 364. In million tonnes per year.

Cell: E089

Comment: Rick Heede:

1970-1979 global coal production data from U.S. Energy Information Administration, courtesy of Michael Grillot, international energy specialist, personal communication Jun06. michael.grillot@eia.doe.gov, 202-254-6577

Cell: FX89

Comment: Rick Heede:

US Energy Information Administration, International Energy Statistics, world primary coal production 1980 to 2010, plus earlier datasets. (2011 production: 7,676.68 million tonnes.)

Cell: FV91

Comment: Rick Heede:

Note that this is the percent of total identified production 1950-2010 of total global coal production 1950-2010.