

**Table ES2. Coal Mining Productivity, 1949-2019**

(Short Tons per Employee Hour)<sup>1</sup>

| Year | Mining Method |                      | East of the Mississippi River |                      |                    | West of the Mississippi River |                      |                    | Total <sup>2</sup> |
|------|---------------|----------------------|-------------------------------|----------------------|--------------------|-------------------------------|----------------------|--------------------|--------------------|
|      | Underground   | Surface <sup>2</sup> | Underground                   | Surface <sup>2</sup> | Total <sup>2</sup> | Underground                   | Surface <sup>2</sup> | Total <sup>2</sup> |                    |
| 1949 | 0.68          | 1.92                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 0.72               |
| 1950 | 0.72          | 1.96                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 0.76               |
| 1951 | 0.76          | 2.00                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 0.80               |
| 1952 | 0.80          | 2.10                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 0.84               |
| 1953 | 0.88          | 2.22                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 0.93               |
| 1954 | 1.00          | 2.48                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.08               |
| 1955 | 1.04          | 2.65                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.14               |
| 1956 | 1.08          | 2.67                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.19               |
| 1957 | 1.11          | 2.73                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.23               |
| 1958 | 1.17          | 2.73                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.31               |
| 1959 | 1.26          | 2.87                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.43               |
| 1960 | 1.33          | 2.91                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.52               |
| 1961 | 1.43          | 3.16                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.64               |
| 1962 | 1.50          | 3.40                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.74               |
| 1963 | 1.60          | 3.66                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.87               |
| 1964 | 1.72          | 3.76                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.99               |
| 1965 | 1.75          | 4.10                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.09               |
| 1966 | 1.83          | 4.28                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.23               |
| 1967 | 1.88          | 4.48                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.31               |
| 1968 | 1.93          | 4.33                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.35               |
| 1969 | 1.95          | 4.50                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.41               |
| 1970 | 1.72          | 4.53                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.30               |
| 1971 | 1.50          | 4.49                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.19               |
| 1972 | 1.49          | 4.54                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.18               |
| 1973 | 1.46          | 4.58                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.16               |
| 1974 | 1.41          | 4.74                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.31               |
| 1975 | 1.19          | 3.26                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.81               |
| 1976 | 1.14          | 3.25                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.78               |
| 1977 | 1.09          | 3.16                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.80               |
| 1978 | 1.04          | 3.03                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.77               |
| 1979 | 1.13          | 3.08                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.81               |
| 1980 | 1.20          | 3.21                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 1.93               |
| 1981 | 1.29          | 3.42                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.10               |
| 1982 | 1.37          | 3.36                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.11               |
| 1983 | 1.61          | 3.81                 | NA                            | NA                   | NA                 | NA                            | NA                   | NA                 | 2.50               |
| 1984 | 1.72          | 4.03                 | 1.69                          | 2.56                 | 1.98               | 2.49                          | 8.15                 | 7.07               | 2.64               |
| 1985 | 1.78          | 4.24                 | 1.75                          | 2.52                 | 2.00               | 2.45                          | 8.61                 | 7.40               | 2.74               |
| 1986 | 2.00          | 4.60                 | 1.96                          | 2.75                 | 2.21               | 2.80                          | 9.02                 | 7.90               | 3.01               |
| 1987 | 2.20          | 4.98                 | 2.16                          | 2.97                 | 2.42               | 3.39                          | 9.86                 | 8.73               | 3.30               |
| 1988 | 2.38          | 5.32                 | 2.32                          | 2.99                 | 2.54               | 3.55                          | 10.73                | 9.38               | 3.55               |
| 1989 | 2.46          | 5.61                 | 2.39                          | 3.13                 | 2.63               | 3.92                          | 11.86                | 10.21              | 3.70               |
| 1990 | 2.54          | 5.94                 | 2.46                          | 3.32                 | 2.73               | 4.01                          | 12.26                | 10.41              | 3.83               |
| 1991 | 2.69          | 6.38                 | 2.59                          | 3.49                 | 2.86               | 4.53                          | 12.36                | 10.79              | 4.09               |
| 1992 | 2.93          | 6.59                 | 2.82                          | 3.61                 | 3.07               | 4.85                          | 12.49                | 11.03              | 4.36               |
| 1993 | 2.95          | 7.23                 | 2.81                          | 3.74                 | 3.11               | 5.18                          | 13.94                | 12.14              | 4.70               |
| 1994 | 3.19          | 7.67                 | 3.02                          | 3.85                 | 3.28               | 5.93                          | 15.19                | 13.22              | 4.98               |
| 1995 | 3.39          | 8.48                 | 3.19                          | 4.03                 | 3.45               | 6.32                          | 16.23                | 14.18              | 5.38               |
| 1996 | 3.57          | 9.05                 | 3.36                          | 4.25                 | 3.63               | 7.03                          | 17.89                | 15.66              | 5.69               |
| 1997 | 3.83          | 9.46                 | 3.63                          | 4.49                 | 3.89               | 6.82                          | 18.63                | 16.04              | 6.04               |
| 1998 | 3.90          | 9.58                 | 3.69                          | 4.31                 | 3.89               | 6.76                          | 18.82                | 16.27              | 6.20               |
| 1999 | 3.99          | 10.39                | 3.74                          | 4.48                 | 3.97               | 7.45                          | 19.57                | 17.18              | 6.61               |
| 2000 | 4.15          | 11.01                | 3.89                          | 4.82                 | 4.18               | 7.66                          | 20.04                | 17.62              | 6.99               |
| 2001 | 4.02          | 10.58                | 3.71                          | 4.53                 | 3.98               | 8.39                          | 20.63                | 18.32              | 6.82               |
| 2002 | 3.98          | 10.36                | 3.67                          | 4.22                 | 3.86               | 7.80                          | 20.67                | 18.06              | 6.80               |
| 2003 | 4.04          | 10.75                | 3.68                          | 4.18                 | 3.85               | 8.33                          | 21.42                | 18.67              | 6.95               |
| 2004 | 3.96          | 10.55                | 3.59                          | 3.95                 | 3.72               | 8.22                          | 22.04                | 19.00              | 6.80               |
| 2005 | 3.62          | 10.03                | 3.28                          | 3.75                 | 3.44               | 7.48                          | 21.98                | 18.50              | 6.36               |

| Year | Mining Method |                      | East of the Mississippi River |                      |                    | West of the Mississippi River |                      |                    | Total <sup>2</sup> |
|------|---------------|----------------------|-------------------------------|----------------------|--------------------|-------------------------------|----------------------|--------------------|--------------------|
|      | Underground   | Surface <sup>2</sup> | Underground                   | Surface <sup>2</sup> | Total <sup>2</sup> | Underground                   | Surface <sup>2</sup> | Total <sup>2</sup> |                    |
| 2006 | 3.37          | 10.18                | 3.06                          | 3.74                 | 3.29               | 6.62                          | 22.26                | 18.33              | 6.26               |
| 2007 | 3.34          | 10.24                | 3.03                          | 3.74                 | 3.27               | 6.52                          | 22.35                | 18.23              | 6.27               |
| 2008 | 3.15          | 9.81                 | 2.87                          | 3.58                 | 3.12               | 6.07                          | 21.85                | 17.77              | 5.96               |
| 2009 | 2.99          | 9.22                 | 2.74                          | 3.33                 | 2.94               | 5.51                          | 19.85                | 16.15              | 5.61               |
| 2010 | 2.89          | 9.46                 | 2.66                          | 3.24                 | 2.84               | 5.54                          | 20.25                | 16.60              | 5.55               |
| 2011 | 2.72          | 8.97                 | 2.49                          | 3.04                 | 2.67               | 5.25                          | 19.59                | 15.93              | 5.19               |
| 2012 | 2.84          | 8.97                 | 2.58                          | 2.99                 | 2.70               | 5.65                          | 18.15                | 15.03              | 5.19               |
| 2013 | 3.07          | 9.69                 | 2.80                          | 3.16                 | 2.89               | 6.09                          | 18.35                | 15.39              | 5.53               |
| 2014 | 3.35          | 10.42                | 3.07                          | 3.27                 | 3.12               | 6.47                          | 18.86                | 15.96              | 5.95               |
| 2015 | 3.45          | 10.94                | 3.24                          | 3.24                 | 3.24               | 5.74                          | 18.20                | 15.51              | 6.28               |
| 2016 | 3.83          | 10.73                | 3.68                          | 3.22                 | 3.57               | 5.18                          | 16.54                | 14.20              | 6.61               |
| 2017 | 3.77          | 10.92                | 3.55                          | 3.16                 | 3.46               | 6.10                          | 17.91                | 15.49              | 6.55               |
| 2018 | 3.68          | 10.36                | 3.50                          | 3.07                 | 3.40               | 5.64                          | 17.38                | 14.92              | 6.24               |
| 2019 | 3.60          | 9.88                 | 3.39                          | 2.91                 | 3.27               | 5.78                          | 16.89                | 14.43              | 5.95               |

NA=Not available.

1 Data through 1973 for bituminous coal, subbituminous coal, and lignite, and data through 1978 for anthracite, were originally reported in short tons per employee day these data were converted to short tons per employee hour by assuming an eight-hour day. Through 1997, other data were calculated by dividing total production by total labor hours worked by all mine employees except office workers; beginning in 1998, the calculation also includes office workers.

2 Beginning in 2001, includes a small amount of refuse recovery.

3 Through 1978, data for anthracite are not available by mining method, but are included in 'Total'.

Note: Web Page: For related information, see <http://www.eia.gov/coal/>.

Sources: 1949-1975 Bureau of Mines, Minerals Yearbook, 'Coal Bituminous and Lignite' and 'Coal Pennsylvania Anthracite' chapters. 1976 U.S. Energy Information Administration (EIA), Energy Data Reports, Coal Bituminous and Lignite in 1976 and Coal Pennsylvania Anthracite 1976. 1977 and 1978 EIA, Energy Data Reports, Bituminous Coal and Lignite Production and Mine Operations 1977. 1978 and Coal Pennsylvania Anthracite 1977. 1978. 1979 EIA, Energy Data Report, Coal Production 1979. 1980-1988 EIA, Coal Production, annual reports. 1989-2000 EIA, Coal Industry Annual, annual reports. 2001-2010 EIA, Annual Coal Report, annual reports. 2011 EIA, Form EIA-7A, 'Coal Production Report,' and U.S. Department of Labor, Mine Safety and Health Administration, Form 7000-2, 'Quarterly Mine Employment and Coal Production Report'.