**Greenhouse Gas Emission from Fuel Combustion**

**1. Sectoral Approach CO2 Emissions**

Unit: thousand tonnes CO2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 49,123 | 30,124 | 19,646 | 2,946 | 3,621 | 4,005 | 109,465 |
| 1991 | 55,126 | 31,963 | 20,888 | 2,700 | 3,529 | 4,238 | 118,443 |
| 1992 | 58,529 | 33,389 | 24,033 | 2,672 | 2,989 | 4,446 | 126,058 |
| 1993 | 65,962 | 33,618 | 26,103 | 2,675 | 2,490 | 4,359 | 135,206 |
| 1994 | 70,771 | 34,592 | 27,540 | 2,721 | 3,018 | 4,461 | 143,103 |
| 1995 | 76,400 | 35,769 | 28,822 | 2,777 | 2,445 | 4,597 | 150,810 |
| 1996 | 81,254 | 36,791 | 29,801 | 2,805 | 3,175 | 4,754 | 158,579 |
| 1997 | 91,407 | 39,084 | 30,536 | 2,475 | 2,482 | 4,851 | 170,835 |
| 1998 | 100,414 | 39,321 | 31,844 | 2,041 | 2,946 | 4,952 | 181,518 |
| 1999 | 105,782 | 41,314 | 32,772 | 2,040 | 3,128 | 5,410 | 190,446 |
| 2000 | 121,143 | 43,850 | 33,207 | 2,362 | 3,205 | 5,354 | 209,122 |
| 2001 | 126,142 | 42,395 | 33,246 | 2,455 | 3,538 | 5,181 | 212,957 |
| 2002 | 130,463 | 44,489 | 34,542 | 2,459 | 3,487 | 5,107 | 220,546 |
| 2003 | 141,730 | 42,563 | 34,509 | 2,811 | 3,952 | 5,042 | 230,607 |
| 2004 | 148,677 | 43,163 | 35,859 | 2,977 | 4,120 | 5,133 | 239,929 |
| 2005 | 156,351 | 42,671 | 36,846 | 2,627 | 4,227 | 5,235 | 247,956 |
| 2006 | 163,615 | 43,994 | 36,771 | 1,647 | 4,272 | 5,033 | 255,331 |
| 2007 | 170,131 | 43,293 | 35,419 | 1,091 | 4,232 | 5,047 | 259,214 |
| 2008 | 164,432 | 39,104 | 33,216 | 1,543 | 4,226 | 5,017 | 247,536 |
| 2009 | 155,166 | 36,698 | 33,541 | 1,169 | 4,264 | 5,030 | 235,868 |
| 2010 | 165,522 | 41,360 | 34,652 | 1,113 | 4,204 | 4,857 | 251,708 |
| 2011 | 169,884 | 42,298 | 35,107 | 1,123 | 3,898 | 4,786 | 257,096 |
| 2012 | 168,333 | 40,983 | 34,284 | 1,259 | 3,635 | 4,672 | 253,166 |
| 2013 | 168,271 | 42,019 | 34,209 | 1,274 | 3,812 | 4,484 | 254,070 |
| 2014 | 175,180 | 38,953 | 34,666 | 1,343 | 3,928 | 4,411 | 258,481 |
| 2015 | 175,198 | 38,074 | 35,506 | 1,287 | 3,941 | 4,469 | 258,476 |
| 2016 | 178,569 | 38,296 | 36,584 | 1,276 | 3,720 | 4,537 | 262,982 |
| 2017 | 187,135 | 36,741 | 36,202 | 1,203 | 3,779 | 4,402 | 269,462 |
| 2018 | 189,212 | 33,480 | 35,207 | 1,512 | 3,317 | 4,480 | 267,208 |
| 2019 | 181,334 | 32,726 | 35,443 | 1,514 | 3,337 | 4,467 | 258,821 |
| 2020 | 180,502 | 31,722 | 35,727 | 1,326 | 3,499 | 4,605 | 257,381 |
| 2021 | 189,455 | 34,334 | 33,917 | 1,315 | 3,469 | 4,501 | 266,991 |

**2. Sectoral Approach CH4 Emissions**

Unit: thousand tonnes CH4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 1.02 | 1.83 | 6.07 | 0.39 | 0.48 | 0.33 | 10.12 |
| 1991 | 1.15 | 1.93 | 6.54 | 0.36 | 0.47 | 0.35 | 10.79 |
| 1992 | 1.12 | 2.06 | 7.46 | 0.36 | 0.39 | 0.36 | 11.76 |
| 1993 | 1.28 | 2.06 | 8.08 | 0.36 | 0.32 | 0.36 | 12.45 |
| 1994 | 1.40 | 2.10 | 8.62 | 0.37 | 0.39 | 0.37 | 13.24 |
| 1995 | 1.62 | 2.15 | 9.13 | 0.37 | 0.31 | 0.38 | 13.96 |
| 1996 | 1.64 | 2.24 | 9.58 | 0.38 | 0.41 | 0.39 | 14.63 |
| 1997 | 1.82 | 2.34 | 9.81 | 0.33 | 0.32 | 0.40 | 15.02 |
| 1998 | 2.02 | 2.37 | 10.28 | 0.27 | 0.38 | 0.41 | 15.74 |
| 1999 | 2.33 | 2.53 | 10.65 | 0.27 | 0.40 | 0.44 | 16.63 |
| 2000 | 2.63 | 2.77 | 10.81 | 0.32 | 0.41 | 0.44 | 17.38 |
| 2001 | 2.79 | 2.82 | 10.89 | 0.33 | 0.44 | 0.43 | 17.70 |
| 2002 | 2.77 | 2.97 | 11.12 | 0.33 | 0.44 | 0.42 | 18.06 |
| 2003 | 3.13 | 2.91 | 11.46 | 0.38 | 0.50 | 0.42 | 18.79 |
| 2004 | 3.23 | 3.02 | 11.80 | 0.40 | 0.51 | 0.42 | 19.38 |
| 2005 | 3.34 | 3.00 | 12.12 | 0.35 | 0.52 | 0.43 | 19.77 |
| 2006 | 3.50 | 3.11 | 11.91 | 0.22 | 0.52 | 0.42 | 19.69 |
| 2007 | 3.59 | 3.08 | 11.58 | 0.15 | 0.52 | 0.42 | 19.33 |
| 2008 | 3.51 | 2.82 | 11.01 | 0.21 | 0.52 | 0.41 | 18.48 |
| 2009 | 3.26 | 2.69 | 11.23 | 0.16 | 0.52 | 0.42 | 18.26 |
| 2010 | 3.43 | 2.94 | 11.38 | 0.15 | 0.50 | 0.40 | 18.80 |
| 2011 | 3.46 | 3.15 | 11.50 | 0.15 | 0.47 | 0.40 | 19.12 |
| 2012 | 3.44 | 3.02 | 11.33 | 0.17 | 0.44 | 0.39 | 18.79 |
| 2013 | 3.41 | 3.10 | 11.34 | 0.17 | 0.46 | 0.37 | 18.86 |
| 2014 | 3.50 | 2.97 | 11.42 | 0.18 | 0.47 | 0.36 | 18.91 |
| 2015 | 3.65 | 2.95 | 11.68 | 0.17 | 0.47 | 0.37 | 19.29 |
| 2016 | 3.67 | 2.95 | 12.03 | 0.17 | 0.44 | 0.37 | 19.65 |
| 2017 | 3.76 | 2.78 | 11.81 | 0.16 | 0.45 | 0.36 | 19.32 |
| 2018 | 3.74 | 2.34 | 11.45 | 0.20 | 0.39 | 0.37 | 18.50 |
| 2019 | 3.61 | 2.32 | 11.47 | 0.20 | 0.39 | 0.37 | 18.37 |
| 2020 | 3.57 | 2.27 | 11.60 | 0.18 | 0.41 | 0.38 | 18.41 |
| 2021 | 3.69 | 2.36 | 10.74 | 0.18 | 0.41 | 0.37 | 17.76 |

**3. Sectoral Approach N2O Emissions**

Unit: thousand tonnes N2O

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 0.46 | 0.30 | 0.98 | 0.02 | 0.03 | 0.01 | 1.80 |
| 1991 | 0.53 | 0.32 | 1.04 | 0.02 | 0.03 | 0.01 | 1.94 |
| 1992 | 0.61 | 0.34 | 1.19 | 0.02 | 0.02 | 0.01 | 2.19 |
| 1993 | 0.69 | 0.34 | 1.28 | 0.02 | 0.02 | 0.01 | 2.36 |
| 1994 | 0.75 | 0.34 | 1.35 | 0.02 | 0.02 | 0.01 | 2.49 |
| 1995 | 0.81 | 0.35 | 1.40 | 0.02 | 0.02 | 0.01 | 2.61 |
| 1996 | 0.91 | 0.37 | 1.44 | 0.02 | 0.02 | 0.01 | 2.77 |
| 1997 | 1.01 | 0.38 | 1.47 | 0.02 | 0.02 | 0.01 | 2.90 |
| 1998 | 1.11 | 0.39 | 1.53 | 0.02 | 0.02 | 0.01 | 3.08 |
| 1999 | 1.21 | 0.41 | 1.57 | 0.02 | 0.02 | 0.01 | 3.25 |
| 2000 | 1.44 | 0.45 | 1.59 | 0.02 | 0.02 | 0.01 | 3.53 |
| 2001 | 1.54 | 0.45 | 1.59 | 0.02 | 0.02 | 0.01 | 3.63 |
| 2002 | 1.61 | 0.47 | 1.66 | 0.02 | 0.02 | 0.01 | 3.80 |
| 2003 | 1.80 | 0.46 | 1.66 | 0.02 | 0.03 | 0.01 | 3.98 |
| 2004 | 1.86 | 0.47 | 1.72 | 0.02 | 0.03 | 0.01 | 4.12 |
| 2005 | 1.96 | 0.47 | 1.77 | 0.02 | 0.03 | 0.01 | 4.26 |
| 2006 | 2.05 | 0.49 | 1.77 | 0.01 | 0.03 | 0.01 | 4.36 |
| 2007 | 2.14 | 0.48 | 1.71 | 0.01 | 0.03 | 0.01 | 4.37 |
| 2008 | 2.07 | 0.44 | 1.60 | 0.01 | 0.03 | 0.01 | 4.16 |
| 2009 | 1.99 | 0.42 | 1.61 | 0.01 | 0.03 | 0.01 | 4.06 |
| 2010 | 2.02 | 0.45 | 1.67 | 0.01 | 0.03 | 0.01 | 4.19 |
| 2011 | 2.04 | 0.48 | 1.69 | 0.01 | 0.02 | 0.01 | 4.25 |
| 2012 | 2.02 | 0.46 | 1.66 | 0.01 | 0.02 | 0.01 | 4.18 |
| 2013 | 2.00 | 0.47 | 1.66 | 0.01 | 0.02 | 0.01 | 4.17 |
| 2014 | 2.01 | 0.45 | 1.68 | 0.01 | 0.02 | 0.01 | 4.18 |
| 2015 | 1.96 | 0.44 | 1.72 | 0.01 | 0.02 | 0.01 | 4.17 |
| 2016 | 2.00 | 0.44 | 1.77 | 0.01 | 0.02 | 0.01 | 4.24 |
| 2017 | 2.08 | 0.41 | 1.75 | 0.01 | 0.02 | 0.01 | 4.28 |
| 2018 | 2.12 | 0.35 | 1.71 | 0.01 | 0.02 | 0.01 | 4.22 |
| 2019 | 2.03 | 0.34 | 1.71 | 0.01 | 0.02 | 0.01 | 4.11 |
| 2020 | 2.00 | 0.33 | 1.72 | 0.01 | 0.02 | 0.01 | 4.09 |
| 2021 | 2.06 | 0.34 | 1.64 | 0.01 | 0.02 | 0.01 | 4.07 |

**4. Sectoral Approach CO2 Emissions (including electricity / heat allocation)**

Unit: thousand tonnes CO2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 15,569 | 50,485 | 19,729 | 3,601 | 9,414 | 10,667 | 109,465 |
| 1991 | 16,025 | 55,082 | 20,975 | 3,465 | 10,733 | 12,163 | 118,443 |
| 1992 | 15,742 | 58,902 | 24,138 | 3,405 | 10,966 | 12,906 | 126,058 |
| 1993 | 17,213 | 61,829 | 26,212 | 3,533 | 12,062 | 14,357 | 135,206 |
| 1994 | 19,122 | 64,214 | 27,645 | 3,586 | 13,509 | 15,028 | 143,103 |
| 1995 | 20,194 | 67,413 | 28,929 | 3,730 | 14,127 | 16,417 | 150,810 |
| 1996 | 21,152 | 70,273 | 29,920 | 3,843 | 15,749 | 17,641 | 158,579 |
| 1997 | 23,959 | 77,213 | 30,703 | 3,589 | 16,824 | 18,548 | 170,835 |
| 1998 | 25,615 | 80,660 | 32,035 | 3,078 | 18,622 | 21,508 | 181,518 |
| 1999 | 26,055 | 86,612 | 32,982 | 3,138 | 19,604 | 22,055 | 190,446 |
| 2000 | 28,541 | 97,724 | 33,452 | 3,576 | 21,935 | 23,893 | 209,122 |
| 2001 | 29,659 | 98,638 | 33,489 | 3,661 | 23,031 | 24,478 | 212,957 |
| 2002 | 29,296 | 103,389 | 34,799 | 3,718 | 24,112 | 25,234 | 220,546 |
| 2003 | 30,969 | 107,534 | 34,768 | 4,169 | 26,275 | 26,891 | 230,607 |
| 2004 | 32,735 | 112,782 | 36,144 | 4,355 | 27,054 | 26,859 | 239,929 |
| 2005 | 35,233 | 114,369 | 37,157 | 4,003 | 28,577 | 28,618 | 247,956 |
| 2006 | 36,815 | 119,781 | 37,103 | 3,102 | 29,750 | 28,781 | 255,331 |
| 2007 | 37,617 | 124,554 | 35,904 | 2,546 | 29,600 | 28,994 | 259,214 |
| 2008 | 34,128 | 118,534 | 33,847 | 2,980 | 29,429 | 28,619 | 247,536 |
| 2009 | 32,871 | 109,860 | 34,161 | 2,563 | 28,116 | 28,295 | 235,868 |
| 2010 | 34,734 | 122,639 | 35,287 | 2,503 | 28,603 | 27,943 | 251,708 |
| 2011 | 35,081 | 127,001 | 35,768 | 2,574 | 28,252 | 28,420 | 257,096 |
| 2012 | 34,627 | 125,671 | 34,953 | 2,687 | 27,757 | 27,471 | 253,166 |
| 2013 | 34,372 | 127,591 | 34,888 | 2,696 | 27,517 | 27,006 | 254,070 |
| 2014 | 37,286 | 127,371 | 35,369 | 2,805 | 27,915 | 27,735 | 258,481 |
| 2015 | 37,149 | 125,756 | 36,234 | 2,812 | 28,588 | 27,936 | 258,476 |
| 2016 | 37,282 | 127,009 | 37,324 | 2,817 | 29,032 | 29,519 | 262,982 |
| 2017 | 37,866 | 130,626 | 37,009 | 2,876 | 30,425 | 30,659 | 269,462 |
| 2018 | 38,041 | 132,433 | 36,012 | 3,082 | 28,295 | 29,346 | 267,208 |
| 2019 | 37,597 | 126,556 | 36,244 | 3,057 | 26,992 | 28,376 | 258,821 |
| 2020 | 36,162 | 125,437 | 36,519 | 2,963 | 26,590 | 29,710 | 257,381 |
| 2021 | 37,095 | 134,442 | 34,704 | 2,991 | 26,536 | 31,223 | 266,991 |

**5. Sectoral Approach CH4 Emissions (including electricity / heat allocation)**

Unit: thousand tonnes CH4

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 0.29 | 2.24 | 6.07 | 0.41 | 0.62 | 0.49 | 10.12 |
| 1991 | 0.29 | 2.41 | 6.54 | 0.38 | 0.64 | 0.54 | 10.79 |
| 1992 | 0.27 | 2.55 | 7.47 | 0.37 | 0.56 | 0.54 | 11.76 |
| 1993 | 0.30 | 2.59 | 8.09 | 0.38 | 0.53 | 0.57 | 12.45 |
| 1994 | 0.34 | 2.69 | 8.62 | 0.38 | 0.61 | 0.59 | 13.24 |
| 1995 | 0.38 | 2.82 | 9.13 | 0.40 | 0.59 | 0.65 | 13.96 |
| 1996 | 0.39 | 2.92 | 9.58 | 0.40 | 0.68 | 0.67 | 14.63 |
| 1997 | 0.41 | 3.13 | 9.81 | 0.36 | 0.62 | 0.69 | 15.02 |
| 1998 | 0.44 | 3.25 | 10.29 | 0.30 | 0.71 | 0.75 | 15.74 |
| 1999 | 0.48 | 3.63 | 10.66 | 0.30 | 0.76 | 0.80 | 16.63 |
| 2000 | 0.53 | 4.04 | 10.82 | 0.34 | 0.81 | 0.83 | 17.38 |
| 2001 | 0.56 | 4.25 | 10.89 | 0.36 | 0.83 | 0.81 | 17.70 |
| 2002 | 0.55 | 4.28 | 11.13 | 0.36 | 0.88 | 0.85 | 18.06 |
| 2003 | 0.61 | 4.39 | 11.47 | 0.41 | 1.00 | 0.91 | 18.79 |
| 2004 | 0.64 | 4.61 | 11.81 | 0.43 | 1.00 | 0.89 | 19.38 |
| 2005 | 0.68 | 4.64 | 12.12 | 0.38 | 1.02 | 0.92 | 19.77 |
| 2006 | 0.69 | 4.84 | 11.91 | 0.25 | 1.07 | 0.92 | 19.69 |
| 2007 | 0.67 | 4.84 | 11.59 | 0.18 | 1.09 | 0.96 | 19.33 |
| 2008 | 0.59 | 4.59 | 11.02 | 0.24 | 1.09 | 0.95 | 18.48 |
| 2009 | 0.58 | 4.32 | 11.24 | 0.19 | 1.03 | 0.91 | 18.26 |
| 2010 | 0.57 | 4.73 | 11.39 | 0.18 | 1.03 | 0.90 | 18.80 |
| 2011 | 0.56 | 4.99 | 11.51 | 0.18 | 0.98 | 0.89 | 19.12 |
| 2012 | 0.55 | 4.86 | 11.35 | 0.20 | 0.96 | 0.87 | 18.79 |
| 2013 | 0.51 | 4.95 | 11.36 | 0.20 | 0.98 | 0.86 | 18.86 |
| 2014 | 0.57 | 4.85 | 11.43 | 0.21 | 0.99 | 0.86 | 18.91 |
| 2015 | 0.57 | 4.87 | 11.70 | 0.21 | 1.04 | 0.91 | 19.29 |
| 2016 | 0.56 | 4.86 | 12.05 | 0.21 | 1.02 | 0.94 | 19.65 |
| 2017 | 0.57 | 4.75 | 11.82 | 0.20 | 1.03 | 0.94 | 19.32 |
| 2018 | 0.55 | 4.39 | 11.47 | 0.24 | 0.94 | 0.92 | 18.50 |
| 2019 | 0.55 | 4.25 | 11.49 | 0.24 | 0.93 | 0.91 | 18.37 |
| 2020 | 0.53 | 4.21 | 11.62 | 0.21 | 0.92 | 0.93 | 18.41 |
| 2021 | 0.53 | 4.40 | 10.76 | 0.21 | 0.91 | 0.95 | 17.76 |

**6. Sectoral Approach N2O Emissions (including electricity / heat allocation)**

Unit: thousand tonnes N2O

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Energy** | **Industrial** | **Transport** | **Agriculture** | **Service** | **Residential** | **Total** |
| 1990 | 0.09 | 0.52 | 0.98 | 0.03 | 0.10 | 0.09 | 1.80 |
| 1991 | 0.09 | 0.57 | 1.04 | 0.03 | 0.11 | 0.10 | 1.94 |
| 1992 | 0.10 | 0.64 | 1.19 | 0.03 | 0.12 | 0.11 | 2.19 |
| 1993 | 0.11 | 0.66 | 1.28 | 0.03 | 0.14 | 0.13 | 2.36 |
| 1994 | 0.13 | 0.69 | 1.35 | 0.03 | 0.15 | 0.14 | 2.49 |
| 1995 | 0.14 | 0.72 | 1.40 | 0.03 | 0.16 | 0.15 | 2.61 |
| 1996 | 0.16 | 0.78 | 1.44 | 0.04 | 0.19 | 0.17 | 2.77 |
| 1997 | 0.17 | 0.84 | 1.47 | 0.03 | 0.20 | 0.18 | 2.90 |
| 1998 | 0.19 | 0.89 | 1.53 | 0.03 | 0.22 | 0.22 | 3.08 |
| 1999 | 0.21 | 0.98 | 1.58 | 0.03 | 0.23 | 0.22 | 3.25 |
| 2000 | 0.25 | 1.12 | 1.60 | 0.04 | 0.27 | 0.25 | 3.53 |
| 2001 | 0.27 | 1.18 | 1.60 | 0.04 | 0.28 | 0.26 | 3.63 |
| 2002 | 0.28 | 1.23 | 1.67 | 0.04 | 0.31 | 0.28 | 3.80 |
| 2003 | 0.31 | 1.32 | 1.67 | 0.04 | 0.34 | 0.31 | 3.98 |
| 2004 | 0.31 | 1.39 | 1.73 | 0.04 | 0.34 | 0.31 | 4.12 |
| 2005 | 0.30 | 1.46 | 1.77 | 0.04 | 0.36 | 0.33 | 4.26 |
| 2006 | 0.32 | 1.53 | 1.77 | 0.03 | 0.38 | 0.33 | 4.36 |
| 2007 | 0.33 | 1.59 | 1.71 | 0.03 | 0.38 | 0.34 | 4.37 |
| 2008 | 0.29 | 1.52 | 1.61 | 0.03 | 0.37 | 0.33 | 4.16 |
| 2009 | 0.29 | 1.44 | 1.62 | 0.03 | 0.35 | 0.33 | 4.06 |
| 2010 | 0.29 | 1.54 | 1.68 | 0.03 | 0.34 | 0.31 | 4.19 |
| 2011 | 0.29 | 1.59 | 1.70 | 0.03 | 0.34 | 0.31 | 4.25 |
| 2012 | 0.28 | 1.58 | 1.67 | 0.03 | 0.33 | 0.30 | 4.18 |
| 2013 | 0.26 | 1.60 | 1.67 | 0.03 | 0.33 | 0.29 | 4.17 |
| 2014 | 0.27 | 1.57 | 1.69 | 0.03 | 0.32 | 0.30 | 4.18 |
| 2015 | 0.27 | 1.53 | 1.73 | 0.03 | 0.32 | 0.29 | 4.17 |
| 2016 | 0.27 | 1.53 | 1.78 | 0.03 | 0.33 | 0.31 | 4.24 |
| 2017 | 0.28 | 1.56 | 1.76 | 0.03 | 0.34 | 0.32 | 4.28 |
| 2018 | 0.28 | 1.56 | 1.72 | 0.03 | 0.32 | 0.31 | 4.22 |
| 2019 | 0.27 | 1.50 | 1.72 | 0.03 | 0.31 | 0.30 | 4.11 |
| 2020 | 0.27 | 1.47 | 1.73 | 0.03 | 0.29 | 0.30 | 4.09 |
| 2021 | 0.26 | 1.53 | 1.65 | 0.03 | 0.29 | 0.32 | 4.07 |

**7. Reference Approach CO2 Emissions**

Unit: thousand tonnes CO2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Coal and Coal**  **Products Total** | **Crude Oil and Petroleum**  **Products Total** | **Natural Gas** | **Waste** | **Total** |
| 1990 | 41,330 | 65,052 | 2,945 | - | 109,328 |
| 1991 | 44,990 | 68,611 | 5,259 | 12 | 118,873 |
| 1992 | 52,049 | 68,644 | 5,331 | 107 | 126,131 |
| 1993 | 58,476 | 74,523 | 5,182 | 120 | 138,301 |
| 1994 | 60,875 | 76,579 | 7,066 | 238 | 144,758 |
| 1995 | 63,159 | 81,156 | 7,489 | 357 | 152,161 |
| 1996 | 71,454 | 80,489 | 7,883 | 453 | 160,279 |
| 1997 | 81,853 | 82,049 | 9,130 | 611 | 173,644 |
| 1998 | 88,831 | 85,368 | 11,611 | 1,130 | 186,939 |
| 1999 | 91,819 | 89,147 | 11,560 | 1,654 | 194,180 |
| 2000 | 108,244 | 89,895 | 13,091 | 2,118 | 213,348 |
| 2001 | 113,628 | 84,799 | 14,563 | 2,730 | 215,720 |
| 2002 | 123,085 | 83,470 | 16,575 | 2,730 | 225,860 |
| 2003 | 130,463 | 82,112 | 17,187 | 3,461 | 233,224 |
| 2004 | 136,653 | 84,123 | 20,226 | 3,760 | 244,762 |
| 2005 | 139,366 | 83,897 | 20,895 | 4,171 | 248,329 |
| 2006 | 146,361 | 84,799 | 21,952 | 3,960 | 257,072 |
| 2007 | 152,815 | 80,133 | 23,775 | 4,992 | 261,715 |
| 2008 | 146,510 | 71,818 | 25,407 | 4,776 | 248,511 |
| 2009 | 140,096 | 67,442 | 24,837 | 4,874 | 237,250 |
| 2010 | 149,748 | 69,032 | 31,135 | 4,801 | 254,715 |
| 2011 | 155,703 | 66,546 | 34,297 | 5,248 | 261,794 |
| 2012 | 152,257 | 62,530 | 35,814 | 5,186 | 255,788 |
| 2013 | 154,968 | 61,030 | 35,664 | 5,192 | 256,854 |
| 2014 | 156,840 | 61,559 | 37,895 | 5,092 | 261,385 |
| 2015 | 151,978 | 60,849 | 40,630 | 5,036 | 258,493 |
| 2016 | 153,984 | 63,427 | 42,468 | 4,504 | 264,384 |
| 2017 | 156,153 | 62,863 | 46,695 | 4,522 | 270,233 |
| 2018 | 156,712 | 58,076 | 47,140 | 5,299 | 267,226 |
| 2019 | 153,812 | 54,431 | 46,435 | 5,506 | 260,185 |
| 2020 | 150,565 | 50,046 | 50,152 | 5,039 | 255,802 |
| 2021 | 159,833 | 45,195 | 54,563 | 6,113 | 265,704 |

**8. Reference Approach CH4 Emissions**

Unit: thousand tonnes CH4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Coal and Coal**  **Products Total** | **Crude Oil and Petroleum**  **Products Total** | **Natural Gas** | **Waste** | **Total** |
| 1990 | 0.38 | 2.61 | 0.05 | - | 3.04 |
| 1991 | 0.39 | 2.75 | 0.09 | 0.01 | 3.25 |
| 1992 | 0.46 | 2.76 | 0.10 | 0.03 | 3.35 |
| 1993 | 0.51 | 3.00 | 0.09 | 0.03 | 3.63 |
| 1994 | 0.53 | 3.08 | 0.13 | 0.09 | 3.83 |
| 1995 | 0.59 | 3.28 | 0.13 | 0.15 | 4.15 |
| 1996 | 0.69 | 3.26 | 0.14 | 0.23 | 4.32 |
| 1997 | 0.80 | 3.33 | 0.16 | 0.31 | 4.59 |
| 1998 | 0.87 | 3.47 | 0.21 | 0.40 | 4.95 |
| 1999 | 0.89 | 3.62 | 0.21 | 0.65 | 5.37 |
| 2000 | 1.05 | 3.67 | 0.23 | 0.81 | 5.77 |
| 2001 | 1.11 | 3.46 | 0.26 | 1.09 | 5.92 |
| 2002 | 1.19 | 3.39 | 0.30 | 1.12 | 6.00 |
| 2003 | 1.19 | 3.36 | 0.31 | 1.45 | 6.31 |
| 2004 | 1.35 | 3.42 | 0.36 | 1.51 | 6.64 |
| 2005 | 1.40 | 3.42 | 0.37 | 1.51 | 6.69 |
| 2006 | 1.46 | 3.43 | 0.39 | 1.55 | 6.83 |
| 2007 | 1.48 | 3.24 | 0.42 | 1.63 | 6.77 |
| 2008 | 1.44 | 2.92 | 0.45 | 1.65 | 6.46 |
| 2009 | 1.42 | 2.75 | 0.44 | 1.59 | 6.20 |
| 2010 | 1.47 | 2.80 | 0.55 | 1.61 | 6.43 |
| 2011 | 1.55 | 2.70 | 0.61 | 1.65 | 6.52 |
| 2012 | 1.51 | 2.56 | 0.64 | 1.66 | 6.36 |
| 2013 | 1.51 | 2.49 | 0.64 | 1.66 | 6.31 |
| 2014 | 1.55 | 2.49 | 0.68 | 1.65 | 6.37 |
| 2015 | 1.49 | 2.46 | 0.72 | 1.71 | 6.38 |
| 2016 | 1.52 | 2.57 | 0.76 | 1.68 | 6.53 |
| 2017 | 1.53 | 2.54 | 0.83 | 1.63 | 6.54 |
| 2018 | 1.51 | 2.36 | 0.84 | 1.71 | 6.42 |
| 2019 | 1.50 | 2.22 | 0.83 | 1.72 | 6.27 |
| 2020 | 1.48 | 2.04 | 0.89 | 1.69 | 6.11 |
| 2021 | 1.58 | 1.86 | 0.97 | 1.69 | 6.10 |

**9. Reference Approach N2O Emissions**

Unit: thousand tonnes N2O

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Coal and Coal**  **Products Total** | **Crude Oil and Petroleum**  **Products Total** | **Natural Gas** | **Waste** | **Total** |
| 1990 | 0.66 | 0.52 | 0.01 | - | 1.18 |
| 1991 | 0.71 | 0.55 | 0.01 | 0.00 | 1.27 |
| 1992 | 0.83 | 0.55 | 0.01 | 0.00 | 1.39 |
| 1993 | 0.93 | 0.60 | 0.01 | 0.00 | 1.54 |
| 1994 | 0.97 | 0.61 | 0.01 | 0.01 | 1.60 |
| 1995 | 1.00 | 0.65 | 0.01 | 0.02 | 1.69 |
| 1996 | 1.13 | 0.65 | 0.01 | 0.03 | 1.83 |
| 1997 | 1.30 | 0.66 | 0.02 | 0.04 | 2.02 |
| 1998 | 1.41 | 0.69 | 0.02 | 0.05 | 2.17 |
| 1999 | 1.45 | 0.72 | 0.02 | 0.09 | 2.28 |
| 2000 | 1.71 | 0.73 | 0.02 | 0.11 | 2.58 |
| 2001 | 1.80 | 0.69 | 0.03 | 0.15 | 2.66 |
| 2002 | 1.95 | 0.68 | 0.03 | 0.15 | 2.80 |
| 2003 | 2.07 | 0.67 | 0.03 | 0.19 | 2.96 |
| 2004 | 2.16 | 0.68 | 0.04 | 0.20 | 3.08 |
| 2005 | 2.21 | 0.68 | 0.04 | 0.20 | 3.13 |
| 2006 | 2.32 | 0.68 | 0.04 | 0.21 | 3.24 |
| 2007 | 2.42 | 0.65 | 0.04 | 0.22 | 3.32 |
| 2008 | 2.32 | 0.58 | 0.05 | 0.22 | 3.17 |
| 2009 | 2.22 | 0.55 | 0.04 | 0.21 | 3.02 |
| 2010 | 2.37 | 0.56 | 0.06 | 0.21 | 3.20 |
| 2011 | 2.46 | 0.54 | 0.06 | 0.22 | 3.28 |
| 2012 | 2.41 | 0.51 | 0.06 | 0.22 | 3.20 |
| 2013 | 2.45 | 0.50 | 0.06 | 0.22 | 3.24 |
| 2014 | 2.48 | 0.50 | 0.07 | 0.22 | 3.26 |
| 2015 | 2.40 | 0.49 | 0.07 | 0.23 | 3.19 |
| 2016 | 2.44 | 0.51 | 0.08 | 0.22 | 3.25 |
| 2017 | 2.47 | 0.51 | 0.08 | 0.22 | 3.28 |
| 2018 | 2.48 | 0.47 | 0.08 | 0.23 | 3.26 |
| 2019 | 2.43 | 0.44 | 0.08 | 0.23 | 3.19 |
| 2020 | 2.38 | 0.40 | 0.09 | 0.23 | 3.10 |
| 2021 | 2.53 | 0.37 | 0.10 | 0.23 | 3.22 |

**10. Fuel Combustion CO2 Emission Indicators**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **CO2 Emissions** (thousand tonnes CO2) | **CO2 Emissions Intensity** (kilogram CO2 /NTD) | **Emissions Per capita** (tonnes of CO2 per capita) |
| 1990 | 109,465 | 0.02121 | 5.41 |
| 1991 | 118,443 | 0.02118 | 5.79 |
| 1992 | 126,058 | 0.02081 | 6.10 |
| 1993 | 135,206 | 0.02090 | 6.49 |
| 1994 | 143,103 | 0.02057 | 6.80 |
| 1995 | 150,810 | 0.02036 | 7.11 |
| 1996 | 158,579 | 0.02016 | 7.41 |
| 1997 | 170,835 | 0.02048 | 7.92 |
| 1998 | 181,518 | 0.02088 | 8.34 |
| 1999 | 190,446 | 0.02053 | 8.68 |
| 2000 | 209,122 | 0.02120 | 9.45 |
| 2001 | 212,957 | 0.02190 | 9.56 |
| 2002 | 220,546 | 0.02150 | 9.83 |
| 2003 | 230,607 | 0.02157 | 10.22 |
| 2004 | 239,929 | 0.02098 | 10.59 |
| 2005 | 247,956 | 0.02058 | 10.91 |
| 2006 | 255,331 | 0.02003 | 11.19 |
| 2007 | 259,214 | 0.01903 | 11.31 |
| 2008 | 247,536 | 0.01803 | 10.76 |
| 2009 | 235,868 | 0.01746 | 10.22 |
| 2010 | 251,708 | 0.01690 | 10.88 |
| 2011 | 257,096 | 0.01665 | 11.08 |
| 2012 | 253,166 | 0.01604 | 10.88 |
| 2013 | 254,070 | 0.01571 | 10.88 |
| 2014 | 258,481 | 0.01526 | 11.04 |
| 2015 | 258,476 | 0.01504 | 11.02 |
| 2016 | 262,982 | 0.01498 | 11.18 |
| 2017 | 269,462 | 0.01486 | 11.44 |
| 2018 | 267,208 | 0.01433 | 11.33 |
| 2019 | 258,821 | 0.01347 | 10.97 |
| 2020 | 257,381 | 0.01296 | 10.91 |
| 2021 | 266,991 | 0.01262 | 11.38 |