**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  |