

**Table A14. World carbon dioxide emissions from power generation by region and fossil fuel type, Low Economic Growth case**

million metric tons of carbon dioxide

| Region and fuel                   | 2022         | 2025         | 2030         | 2035         | 2040         | 2045         | 2050         | Average annual percentage change, 2022–2050 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---|
| <b>Americas</b>                   |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 92           | 109          | 55           | 23           | 10           | 4            | 4            | -10.9%                                      |
| Natural gas                       | 852          | 727          | 609          | 527          | 549          | 546          | 560          | -1.5%                                       |
| Coal                              | 907          | 781          | 338          | 344          | 342          | 335          | 352          | -3.3%                                       |
| <b>Total</b>                      | <b>1,851</b> | <b>1,617</b> | <b>1,003</b> | <b>893</b>   | <b>901</b>   | <b>885</b>   | <b>915</b>   | <b>-2.5%</b>                                |
| <b>United States</b>              |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 8            | 8            | 5            | 5            | 4            | 3            | 3            | -3.5%                                       |
| Natural gas                       | 646          | 509          | 394          | 327          | 355          | 357          | 374          | -1.9%                                       |
| Coal                              | 842          | 728          | 293          | 281          | 245          | 215          | 200          | -5.0%                                       |
| <b>Total</b>                      | <b>1,496</b> | <b>1,245</b> | <b>692</b>   | <b>613</b>   | <b>604</b>   | <b>575</b>   | <b>577</b>   | <b>-3.3%</b>                                |
| <b>Canada</b>                     |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 2            | 2            | 0            | 0            | 0            | 0            | 0            | -10.8%                                      |
| Natural gas                       | 27           | 29           | 15           | 3            | 2            | 2            | 3            | -8.1%                                       |
| Coal                              | 33           | 16           | 0            | 0            | 0            | 0            | 0            | -100.0%                                     |
| <b>Total</b>                      | <b>61</b>    | <b>47</b>    | <b>15</b>    | <b>3</b>     | <b>2</b>     | <b>2</b>     | <b>3</b>     | <b>-10.7%</b>                               |
| <b>Mexico</b>                     |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 28           | 36           | 19           | 9            | 3            | 0            | 0            | -18.4%                                      |
| Natural gas                       | 70           | 73           | 76           | 74           | 77           | 78           | 76           | 0.3%  |
| Coal                              | 7            | 8            | 9            | 13           | 21           | 21           | 21           | 4.1%  |
| <b>Total</b>                      | <b>105</b>   | <b>117</b>   | <b>104</b>   | <b>96</b>    | <b>101</b>   | <b>99</b>    | <b>97</b>    | <b>-0.3%</b>                                |
| <b>Brazil</b>                     |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 10           | 14           | 6            | 1            | 0            | 0            | 0            | -15.3%                                      |
| Natural gas                       | 28           | 36           | 46           | 37           | 29           | 24           | 22           | -0.9%                                       |
| Coal                              | 9            | 10           | 8            | 9            | 9            | 9            | 21           | 3.2%  |
| <b>Total</b>                      | <b>47</b>    | <b>60</b>    | <b>60</b>    | <b>46</b>    | <b>38</b>    | <b>33</b>    | <b>42</b>    | <b>-0.4%</b>                                |
| <b>Other Americas</b>             |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 44           | 50           | 25           | 8            | 3            | 0            | 0            | -17.4%                                      |
| Natural gas                       | 81           | 80           | 78           | 86           | 86           | 86           | 86           | 0.2%  |
| Coal                              | 17           | 19           | 28           | 41           | 67           | 90           | 110          | 6.9%  |
| <b>Total</b>                      | <b>142</b>   | <b>149</b>   | <b>131</b>   | <b>135</b>   | <b>156</b>   | <b>176</b>   | <b>196</b>   | <b>1.2%</b>                                 |
| <b>Europe and Eurasia</b>         |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 58           | 80           | 80           | 54           | 41           | 40           | 38           | -1.5%                                       |
| Natural gas                       | 701          | 706          | 734          | 728          | 730          | 747          | 765          | 0.3%  |
| Coal                              | 848          | 804          | 636          | 637          | 626          | 603          | 682          | -0.8%                                       |
| <b>Total</b>                      | <b>1,607</b> | <b>1,589</b> | <b>1,450</b> | <b>1,420</b> | <b>1,397</b> | <b>1,389</b> | <b>1,485</b> | <b>-0.3%</b>                                |
| <b>Western Europe</b>             |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 40           | 57           | 61           | 46           | 34           | 34           | 33           | -0.7%                                       |
| Natural gas                       | 263          | 297          | 365          | 348          | 339          | 332          | 326          | 0.8%  |
| Coal                              | 481          | 452          | 316          | 321          | 301          | 277          | 357          | -1.1%                                       |
| <b>Total</b>                      | <b>784</b>   | <b>806</b>   | <b>742</b>   | <b>715</b>   | <b>674</b>   | <b>643</b>   | <b>716</b>   | <b>-0.3%</b>                                |
| <b>Russia</b>                     |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 13           | 19           | 16           | 5            | 4            | 3            | 2            | -7.2%                                       |
| Natural gas                       | 315          | 295          | 275          | 295          | 299          | 303          | 308          | -0.1%                                       |
| Coal                              | 179          | 190          | 166          | 142          | 142          | 142          | 142          | -0.8%                                       |
| <b>Total</b>                      | <b>508</b>   | <b>504</b>   | <b>456</b>   | <b>441</b>   | <b>445</b>   | <b>448</b>   | <b>451</b>   | <b>-0.4%</b>                                |
| <b>Eastern Europe and Eurasia</b> |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 4            | 4            | 3            | 3            | 3            | 3            | 3            | -1.2%                                       |
| Natural gas                       | 123          | 113          | 95           | 86           | 92           | 112          | 130          | 0.2%  |
| Coal                              | 187          | 162          | 155          | 174          | 184          | 184          | 184          | -0.1%                                       |
| <b>Total</b>                      | <b>315</b>   | <b>279</b>   | <b>253</b>   | <b>263</b>   | <b>278</b>   | <b>299</b>   | <b>317</b>   | <b>0.0%</b>                                 |
| <b>Asia Pacific</b>               |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 49           | 55           | 32           | 18           | 10           | 7            | 5            | -7.6%                                       |
| Natural gas                       | 618          | 657          | 637          | 594          | 575          | 592          | 602          | -0.1%                                       |
| Coal                              | 7,386        | 7,237        | 7,495        | 7,656        | 7,479        | 7,240        | 6,994        | -0.2%                                       |
| <b>Total</b>                      | <b>8,052</b> | <b>7,949</b> | <b>8,164</b> | <b>8,267</b> | <b>8,064</b> | <b>7,839</b> | <b>7,601</b> | <b>-0.2%</b>                                |
| <b>Japan</b>                      |              |              |              |              |              |              |              |   |
| Liquid fuels                      | 9            | 13           | 9            | 5            | 3            | 3            | 3            | -4.1%                                       |
| Natural gas                       | 145          | 145          | 134          | 117          | 103          | 97           | 94           | -1.5%                                       |
| Coal                              | 251          | 249          | 147          | 126          | 126          | 126          | 126          | -2.4%                                       |
| <b>Total</b>                      | <b>406</b>   | <b>406</b>   | <b>290</b>   | <b>248</b>   | <b>232</b>   | <b>226</b>   | <b>223</b>   | <b>-2.1%</b>                                |

|                           |               |               |               |               |               |               |               |              |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| South Korea               |               |               |               |               |               |               |               |              |
| Liquid fuels              | 2             | 3             | 3             | 3             | 2             | 2             | 2             | 0.3%         |
| Natural gas               | 69            | 65            | 60            | 54            | 50            | 47            | 47            | -1.4%        |
| Coal                      | 130           | 124           | 134           | 143           | 147           | 151           | 151           | 0.5%         |
| <b>Total</b>              | <b>202</b>    | <b>192</b>    | <b>197</b>    | <b>200</b>    | <b>199</b>    | <b>200</b>    | <b>200</b>    | <b>0.0%</b>  |
| Australia and New Zealand |               |               |               |               |               |               |               |              |
| Liquid fuels              | 1             | 1             | 0             | 0             | 0             | 0             | 0             | -7.3%        |
| Natural gas               | 22            | 21            | 23            | 18            | 14            | 14            | 14            | -1.5%        |
| Coal                      | 123           | 109           | 125           | 138           | 140           | 138           | 138           | 0.4%         |
| <b>Total</b>              | <b>145</b>    | <b>132</b>    | <b>148</b>    | <b>156</b>    | <b>154</b>    | <b>153</b>    | <b>152</b>    | <b>0.2%</b>  |
| China                     |               |               |               |               |               |               |               |              |
| Liquid fuels              | 2             | 2             | 1             | 0             | 0             | 0             | 0             | -13.4%       |
| Natural gas               | 121           | 148           | 145           | 155           | 170           | 196           | 209           | 2.0%         |
| Coal                      | 5,206         | 5,016         | 4,838         | 4,737         | 4,506         | 4,265         | 4,062         | -0.9%        |
| <b>Total</b>              | <b>5,328</b>  | <b>5,166</b>  | <b>4,984</b>  | <b>4,892</b>  | <b>4,676</b>  | <b>4,461</b>  | <b>4,271</b>  | <b>-0.8%</b> |
| India                     |               |               |               |               |               |               |               |              |
| Liquid fuels              | 3             | 2             | 1             | 0             | 0             | 0             | 0             | -14.5%       |
| Natural gas               | 24            | 24            | 26            | 31            | 31            | 31            | 31            | 0.9%         |
| Coal                      | 1,077         | 1,168         | 1,492         | 1,533         | 1,556         | 1,556         | 1,424         | 1.0%         |
| <b>Total</b>              | <b>1,104</b>  | <b>1,194</b>  | <b>1,519</b>  | <b>1,563</b>  | <b>1,587</b>  | <b>1,587</b>  | <b>1,455</b>  | <b>1.0%</b>  |
| Other Asia Pacific        |               |               |               |               |               |               |               |              |
| Liquid fuels              | 33            | 34            | 18            | 10            | 5             | 2             | 0             | -14.5%       |
| Natural gas               | 237           | 254           | 249           | 219           | 207           | 207           | 207           | -0.5%        |
| Coal                      | 598           | 572           | 760           | 980           | 1,004         | 1,004         | 1,093         | 2.2%         |
| <b>Total</b>              | <b>867</b>    | <b>860</b>    | <b>1,027</b>  | <b>1,209</b>  | <b>1,216</b>  | <b>1,213</b>  | <b>1,301</b>  | <b>1.5%</b>  |
| Africa and Middle East    |               |               |               |               |               |               |               |              |
| Liquid fuels              | 205           | 230           | 119           | 50            | 22            | 8             | 2             | -15.2%       |
| Natural gas               | 587           | 612           | 630           | 677           | 701           | 732           | 757           | 0.9%         |
| Coal                      | 212           | 188           | 219           | 209           | 260           | 244           | 269           | 0.9%         |
| <b>Total</b>              | <b>1,004</b>  | <b>1,030</b>  | <b>968</b>    | <b>935</b>    | <b>983</b>    | <b>984</b>    | <b>1,029</b>  | <b>0.1%</b>  |
| Africa                    |               |               |               |               |               |               |               |              |
| Liquid fuels              | 31            | 31            | 12            | 2             | 1             | 0             | 0             | -16.3%       |
| Natural gas               | 166           | 167           | 172           | 174           | 180           | 192           | 203           | 0.7%         |
| Coal                      | 212           | 187           | 218           | 209           | 260           | 244           | 269           | 0.9%         |
| <b>Total</b>              | <b>409</b>    | <b>385</b>    | <b>402</b>    | <b>385</b>    | <b>441</b>    | <b>436</b>    | <b>473</b>    | <b>0.5%</b>  |
| Middle East               |               |               |               |               |               |               |               |              |
| Liquid fuels              | 174           | 200           | 107           | 48            | 21            | 8             | 2             | -15.0%       |
| Natural gas               | 421           | 445           | 459           | 502           | 521           | 540           | 554           | 1.0%         |
| Coal                      | 0             | 0             | 0             | 0             | 0             | 0             | 0             | -6.1%        |
| <b>Total</b>              | <b>595</b>    | <b>645</b>    | <b>566</b>    | <b>550</b>    | <b>542</b>    | <b>548</b>    | <b>556</b>    | <b>-0.2%</b> |
| World                     |               |               |               |               |               |               |               |              |
| Liquid fuels              | 404           | 475           | 287           | 145           | 83            | 58            | 49            | -7.3%        |
| Natural gas               | 2,757         | 2,702         | 2,610         | 2,526         | 2,555         | 2,617         | 2,685         | -0.1%        |
| Coal                      | 9,353         | 9,009         | 8,688         | 8,846         | 8,708         | 8,422         | 8,297         | -0.4%        |
| <b>Total</b>              | <b>12,514</b> | <b>12,185</b> | <b>11,585</b> | <b>11,516</b> | <b>11,345</b> | <b>11,097</b> | <b>11,031</b> | <b>-0.4%</b> |

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run Im\_230821.151939 and Annual Energy Outlook 2023 (March 2023), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Note: Totals may not equal sum of components due to independent rounding. Net carbon dioxide emissions represent gross emissions less CCS (carbon captured and sequestered) emissions from CCS capable units during the power generation.