

**Table F3. Delivered energy consumption in the United States by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections  |              |              |              |              | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--|
|                                   | 2011        | 2012        | 2020         | 2025         | 2030         | 2035         | 2040         |  |
| <b>Residential</b>                |             |             |              |              |              |              |              |  |
| Liquids                           | 1.1         | 0.9         | 0.7          | 0.7          | 0.6          | 0.5          | 0.5          | -2.1                                   |
| Natural gas                       | 4.8         | 4.3         | 4.6          | 4.5          | 4.5          | 4.4          | 4.3          | 0.1                                    |
| Coal                              | 0.0         | 0.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | —                                      |
| Electricity                       | 4.9         | 4.7         | 4.9          | 4.9          | 5.1          | 5.2          | 5.4          | 0.5                                    |
| Renewables                        | 0.5         | 0.4         | 0.4          | 0.4          | 0.4          | 0.4          | 0.4          | -0.8                                   |
| <b>Total</b>                      | <b>11.3</b> | <b>10.3</b> | <b>10.6</b>  | <b>10.5</b>  | <b>10.6</b>  | <b>10.6</b>  | <b>10.6</b>  | <b>0.1</b>                             |
| <b>Commercial</b>                 |             |             |              |              |              |              |              |  |
| Liquids                           | 0.6         | 0.6         | 0.6          | 0.6          | 0.6          | 0.6          | 0.6          | 0.0                                    |
| Natural gas                       | 3.2         | 3.0         | 3.3          | 3.3          | 3.4          | 3.6          | 3.7          | 0.8                                    |
| Coal                              | 0.1         | 0.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.3                                    |
| Electricity                       | 4.5         | 4.5         | 4.8          | 5.0          | 5.2          | 5.4          | 5.7          | 0.8                                    |
| Renewables                        | 0.1         | 0.1         | 0.1          | 0.1          | 0.1          | 0.1          | 0.1          | 0.5                                    |
| <b>Total</b>                      | <b>8.6</b>  | <b>8.2</b>  | <b>8.9</b>   | <b>9.1</b>   | <b>9.4</b>   | <b>9.7</b>   | <b>10.1</b>  | <b>0.7</b>                             |
| <b>Industrial</b>                 |             |             |              |              |              |              |              |  |
| Liquids                           | 8.0         | 8.1         | 9.6          | 10.2         | 10.4         | 10.5         | 10.6         | 1.0                                    |
| Natural gas                       | 8.5         | 8.8         | 10.2         | 10.4         | 10.7         | 10.9         | 11.2         | 0.9                                    |
| Coal                              | 1.5         | 1.5         | 1.5          | 1.5          | 1.5          | 1.4          | 1.4          | -0.1                                   |
| Electricity                       | 3.4         | 3.4         | 3.7          | 4.0          | 4.0          | 4.1          | 4.1          | 0.7                                    |
| Renewables                        | 2.2         | 2.2         | 2.3          | 2.4          | 2.4          | 2.4          | 2.5          | 0.4                                    |
| <b>Total</b>                      | <b>23.6</b> | <b>24.0</b> | <b>27.4</b>  | <b>28.6</b>  | <b>29.1</b>  | <b>29.3</b>  | <b>29.8</b>  | <b>0.8</b>                             |
| <b>Transportation</b>             |             |             |              |              |              |              |              |  |
| Liquids                           | 25.9        | 25.3        | 26.3         | 25.6         | 25.0         | 24.9         | 24.8         | -0.1                                   |
| Natural gas                       | 0.7         | 0.8         | 0.9          | 1.0          | 1.1          | 1.3          | 1.7          | 2.7                                    |
| Coal                              | 0.0         | 0.0         | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0          | 0.0          | 0.0          | 0.1          | 0.1          | 3.4                                    |
| <b>Total</b>                      | <b>26.7</b> | <b>26.2</b> | <b>27.2</b>  | <b>26.6</b>  | <b>26.2</b>  | <b>26.2</b>  | <b>26.5</b>  | <b>0.0</b>                             |
| <b>All end-use sectors</b>        |             |             |              |              |              |              |              |  |
| Liquids                           | 35.6        | 34.9        | 36.9         | 36.7         | 36.3         | 36.1         | 36.0         | 0.1                                    |
| Natural gas                       | 17.3        | 16.8        | 19.0         | 19.3         | 19.8         | 20.2         | 20.9         | 0.8                                    |
| Coal                              | 1.6         | 1.5         | 1.6          | 1.6          | 1.5          | 1.5          | 1.5          | 0.0                                    |
| Electricity                       | 12.8        | 12.6        | 13.4         | 13.9         | 14.3         | 14.7         | 15.3         | 0.7                                    |
| Renewables                        | 2.8         | 2.8         | 2.9          | 2.9          | 2.9          | 2.9          | 3.0          | 0.2                                    |
| Delivered energy                  | <b>70.1</b> | <b>68.7</b> | <b>73.8</b>  | <b>74.4</b>  | <b>74.9</b>  | <b>75.4</b>  | <b>76.6</b>  | <b>0.4</b>                             |
| Electricity-related losses        | 26.7        | 25.7        | 27.0         | 27.6         | 28.0         | 28.5         | 29.1         | 0.4                                    |
| <b>Total</b>                      | <b>96.8</b> | <b>94.4</b> | <b>100.8</b> | <b>102.0</b> | <b>102.9</b> | <b>103.8</b> | <b>105.7</b> | <b>0.4</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |              |              |              |              |              |  |
| Liquids                           | 0.3         | 0.2         | 0.2          | 0.2          | 0.2          | 0.2          | 0.2          | -0.9                                   |
| Natural gas                       | 7.7         | 9.3         | 7.8          | 8.3          | 9.0          | 9.4          | 9.6          | 0.1                                    |
| Coal                              | 18.0        | 15.8        | 17.6         | 17.8         | 17.6         | 17.5         | 17.5         | 0.4                                    |
| Nuclear                           | 8.3         | 8.1         | 8.4          | 8.5          | 8.5          | 8.5          | 8.7          | 0.3                                    |
| Renewables                        | 5.1         | 4.9         | 6.5          | 6.8          | 7.1          | 7.6          | 8.3          | 1.9                                    |
| <b>Total</b>                      | <b>39.5</b> | <b>38.3</b> | <b>40.4</b>  | <b>41.5</b>  | <b>42.4</b>  | <b>43.2</b>  | <b>44.4</b>  | <b>0.5</b>                             |
| <b>Unspecified sector</b>         | <b>0.0</b>  | <b>0.0</b>  | <b>-0.3</b>  | <b>-0.4</b>  | <b>-0.4</b>  | <b>-0.4</b>  | <b>-0.4</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |              |              |              |              |              |  |
| Liquids                           | 35.9        | 35.2        | 37.1         | 36.9         | 36.5         | 36.3         | 36.2         | 0.1                                    |
| Natural gas                       | 25.0        | 26.1        | 26.8         | 27.6         | 28.8         | 29.6         | 30.5         | 0.6                                    |
| Coal                              | 19.6        | 17.3        | 19.2         | 19.3         | 19.2         | 19.0         | 19.0         | 0.3                                    |
| Nuclear                           | 8.3         | 8.1         | 8.4          | 8.5          | 8.5          | 8.5          | 8.7          | 0.3                                    |
| Renewables                        | 7.9         | 7.7         | 9.3          | 9.7          | 9.9          | 10.4         | 11.3         | 1.4                                    |
| <b>Total</b>                      | <b>96.8</b> | <b>94.4</b> | <b>100.8</b> | <b>102.0</b> | <b>102.9</b> | <b>103.8</b> | <b>105.7</b> | <b>0.4</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: EIA, *Annual Energy Outlook 2015*, DOE/EIA-0383(2015) (Washington, DC: April 2015); AEO2015 National Energy Modeling System, run REF2015.D021915A, [www.eia.gov/aeo](http://www.eia.gov/aeo).

**Table F10. Total non-OECD delivered energy consumption by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History      |              | Projections  |              |              |              |              | Average annual percent change, 2012–40 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|                                   | 2011         | 2012         | 2020         | 2025         | 2030         | 2035         | 2040         |  |
| <b>Residential</b>                |              |              |              |              |              |              |              |  |
| Liquids                           | 5.0          | 5.2          | 5.9          | 5.8          | 5.7          | 5.5          | 5.4          | 0.1                                    |
| Natural gas                       | 8.6          | 8.4          | 10.4         | 11.8         | 13.0         | 14.1         | 14.9         | 2.1                                    |
| Coal                              | 3.9          | 4.1          | 3.8          | 3.6          | 3.5          | 3.4          | 3.4          | -0.7                                   |
| Electricity                       | 7.6          | 8.1          | 11.3         | 13.8         | 16.3         | 19.0         | 22.2         | 3.7                                    |
| Renewables                        | 0.0          | 0.7          | 0.7          | 0.7          | 0.8          | 0.8          | 0.8          | 0.8                                    |
| <b>Total</b>                      | <b>25.0</b>  | <b>26.4</b>  | <b>32.1</b>  | <b>35.7</b>  | <b>39.2</b>  | <b>42.9</b>  | <b>46.7</b>  | <b>2.1</b>                             |
| <b>Commercial</b>                 |              |              |              |              |              |              |              |  |
| Liquids                           | 1.3          | 1.4          | 1.6          | 1.7          | 1.7          | 1.8          | 1.8          | 0.9                                    |
| Natural gas                       | 1.7          | 1.8          | 2.3          | 2.5          | 2.8          | 2.9          | 2.9          | 1.7                                    |
| Coal                              | 1.0          | 1.1          | 1.1          | 1.2          | 1.2          | 1.2          | 1.3          | 0.4                                    |
| Electricity                       | 4.7          | 4.9          | 6.7          | 8.0          | 9.3          | 10.7         | 12.1         | 3.3                                    |
| Renewables                        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.8                                    |
| <b>Total</b>                      | <b>8.8</b>   | <b>9.3</b>   | <b>11.7</b>  | <b>13.4</b>  | <b>15.0</b>  | <b>16.6</b>  | <b>18.1</b>  | <b>2.4</b>                             |
| <b>Industrial</b>                 |              |              |              |              |              |              |              |  |
| Liquids                           | 38.0         | 39.3         | 43.3         | 46.7         | 50.3         | 54.2         | 57.9         | 1.4                                    |
| Natural gas                       | 28.2         | 29.7         | 33.6         | 38.6         | 43.8         | 49.6         | 54.7         | 2.2                                    |
| Coal                              | 45.9         | 47.3         | 53.4         | 55.5         | 57.1         | 58.6         | 59.7         | 0.8                                    |
| Electricity                       | 20.4         | 21.0         | 25.5         | 27.9         | 29.7         | 31.5         | 33.1         | 1.6                                    |
| Renewables                        | 11.2         | 11.8         | 12.5         | 13.9         | 15.4         | 17.1         | 19.0         | 1.7                                    |
| <b>Total</b>                      | <b>143.6</b> | <b>149.0</b> | <b>168.3</b> | <b>182.6</b> | <b>196.3</b> | <b>211.0</b> | <b>224.5</b> | <b>1.5</b>                             |
| <b>Transportation</b>             |              |              |              |              |              |              |              |  |
| Liquids                           | 42.0         | 44.1         | 53.3         | 59.7         | 65.7         | 72.3         | 79.9         | 2.1                                    |
| Natural gas                       | 2.4          | 2.3          | 3.8          | 5.2          | 7.6          | 10.1         | 13.2         | 6.4                                    |
| Coal                              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | —                                      |
| Electricity                       | 0.3          | 0.3          | 0.6          | 0.7          | 0.9          | 1.1          | 1.3          | 5.0                                    |
| <b>Total</b>                      | <b>44.6</b>  | <b>46.8</b>  | <b>57.6</b>  | <b>65.7</b>  | <b>74.1</b>  | <b>83.5</b>  | <b>94.4</b>  | <b>2.5</b>                             |
| <b>All end-use sectors</b>        |              |              |              |              |              |              |              |  |
| Liquids                           | 86.2         | 90.0         | 104.2        | 113.9        | 123.4        | 133.8        | 145.0        | 1.7                                    |
| Natural gas                       | 40.9         | 42.2         | 50.0         | 58.1         | 67.1         | 76.7         | 85.7         | 2.6                                    |
| Coal                              | 50.8         | 52.5         | 58.3         | 60.3         | 61.8         | 63.2         | 64.3         | 0.7                                    |
| Electricity                       | 32.9         | 34.4         | 44.1         | 50.3         | 56.1         | 62.4         | 68.7         | 2.5                                    |
| Renewables                        | 11.3         | 12.4         | 13.2         | 14.7         | 16.2         | 17.9         | 19.9         | 1.7                                    |
| Delivered energy                  | <b>222.1</b> | <b>231.5</b> | <b>269.7</b> | <b>297.3</b> | <b>324.6</b> | <b>354.0</b> | <b>383.6</b> | <b>1.8</b>                             |
| Electricity-related losses        | 76.5         | 79.3         | 105.3        | 116.0        | 125.9        | 137.3        | 149.2        | 2.3                                    |
| <b>Total</b>                      | <b>298.6</b> | <b>310.8</b> | <b>375.0</b> | <b>413.3</b> | <b>450.5</b> | <b>491.2</b> | <b>532.8</b> | <b>1.9</b>                             |
| <b>Electric power<sup>a</sup></b> |              |              |              |              |              |              |              |  |
| Liquids                           | 6.1          | 6.4          | 6.0          | 5.2          | 4.6          | 4.4          | 4.2          | -1.5                                   |
| Natural gas                       | 20.9         | 22.1         | 25.2         | 29.7         | 34.3         | 39.9         | 45.1         | 2.6                                    |
| Coal                              | 57.5         | 58.9         | 66.6         | 68.9         | 69.4         | 70.9         | 73.2         | 0.8                                    |
| Nuclear                           | 5.0          | 5.2          | 9.6          | 12.4         | 17.2         | 20.3         | 23.4         | 5.5                                    |
| Renewables                        | 22.8         | 24.3         | 38.3         | 46.3         | 52.1         | 59.1         | 66.0         | 3.6                                    |
| <b>Total</b>                      | <b>112.3</b> | <b>116.9</b> | <b>145.7</b> | <b>162.4</b> | <b>177.7</b> | <b>194.6</b> | <b>211.9</b> | <b>2.1</b>                             |
| <b>Unspecified sector</b>         | <b>-2.6</b>  | <b>-2.9</b>  | <b>3.7</b>   | <b>3.9</b>   | <b>4.3</b>   | <b>5.0</b>   | <b>6.0</b>   | <b>—</b>                               |
| <b>Total energy consumption</b>   |              |              |              |              |              |              |              |  |
| Liquids                           | 88.6         | 92.6         | 113.8        | 123.0        | 132.3        | 143.3        | 155.3        | 1.9                                    |
| Natural gas                       | 62.4         | 64.8         | 75.2         | 87.8         | 101.4        | 116.6        | 130.9        | 2.5                                    |
| Coal                              | 108.4        | 111.5        | 124.9        | 129.2        | 131.2        | 134.0        | 137.5        | 0.8                                    |
| Nuclear                           | 5.0          | 5.2          | 9.6          | 12.4         | 17.2         | 20.3         | 23.4         | 5.5                                    |
| Renewables                        | 34.1         | 36.8         | 51.5         | 60.9         | 68.3         | 77.0         | 85.8         | 3.1                                    |
| <b>Total</b>                      | <b>298.6</b> | <b>310.8</b> | <b>375.0</b> | <b>413.3</b> | <b>450.5</b> | <b>491.2</b> | <b>532.8</b> | <b>1.9</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F11. Delivered energy consumption in Russia by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.4         | 0.4         | 0.4         | 0.4         | 0.4         | 0.4         | 0.4         | -0.2                                   |
| Natural gas                       | 2.9         | 2.6         | 2.9         | 3.0         | 3.0         | 3.0         | 2.9         | 0.4                                    |
| Coal                              | 0.3         | 0.4         | 0.4         | 0.4         | 0.3         | 0.3         | 0.3         | -0.6                                   |
| Electricity                       | 0.5         | 0.5         | 0.5         | 0.6         | 0.7         | 0.8         | 0.9         | 2.4                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| <b>Total</b>                      | <b>4.0</b>  | <b>3.8</b>  | <b>4.2</b>  | <b>4.4</b>  | <b>4.4</b>  | <b>4.5</b>  | <b>4.5</b>  | <b>0.6</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1                                    |
| Natural gas                       | 0.4         | 0.4         | 0.4         | 0.5         | 0.4         | 0.4         | 0.4         | 0.2                                    |
| Coal                              | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | -0.2                                   |
| Electricity                       | 0.5         | 0.6         | 0.6         | 0.7         | 0.8         | 0.8         | 0.9         | 1.7                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| <b>Total</b>                      | <b>1.2</b>  | <b>1.3</b>  | <b>1.4</b>  | <b>1.5</b>  | <b>1.5</b>  | <b>1.6</b>  | <b>1.6</b>  | <b>0.8</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 3.6         | 3.7         | 3.3         | 3.4         | 3.3         | 3.3         | 3.1         | -0.6                                   |
| Natural gas                       | 5.1         | 5.5         | 5.1         | 5.3         | 5.4         | 5.4         | 4.9         | -0.4                                   |
| Coal                              | 2.1         | 2.4         | 2.3         | 2.4         | 2.4         | 2.4         | 2.2         | -0.3                                   |
| Electricity                       | 1.7         | 1.7         | 1.6         | 1.6         | 1.7         | 1.7         | 1.6         | -0.3                                   |
| Renewables                        | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | -1.2                                   |
| <b>Total</b>                      | <b>12.6</b> | <b>13.4</b> | <b>12.4</b> | <b>12.8</b> | <b>12.9</b> | <b>12.8</b> | <b>11.8</b> | <b>-0.4</b>                            |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 3.2         | 3.4         | 3.5         | 3.6         | 3.6         | 3.6         | 3.6         | 0.2                                    |
| Natural gas                       | 1.1         | 1.0         | 1.1         | 1.2         | 1.4         | 1.6         | 1.8         | 2.2                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.1                                    |
| <b>Total</b>                      | <b>4.3</b>  | <b>4.4</b>  | <b>4.6</b>  | <b>4.9</b>  | <b>5.1</b>  | <b>5.3</b>  | <b>5.5</b>  | <b>0.8</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 7.3         | 7.6         | 7.4         | 7.5         | 7.5         | 7.4         | 7.2         | -0.2                                   |
| Natural gas                       | 9.4         | 9.5         | 9.5         | 10.0        | 10.2        | 10.4        | 10.1        | 0.2                                    |
| Coal                              | 2.6         | 3.0         | 2.8         | 2.9         | 2.9         | 2.9         | 2.7         | -0.3                                   |
| Electricity                       | 2.7         | 2.8         | 2.8         | 3.0         | 3.2         | 3.4         | 3.4         | 0.7                                    |
| Renewables                        | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | -1.2                                   |
| Delivered energy                  | <b>22.2</b> | <b>22.9</b> | <b>22.6</b> | <b>23.6</b> | <b>23.9</b> | <b>24.3</b> | <b>23.4</b> | <b>0.1</b>                             |
| Electricity-related losses        | 8.7         | 9.1         | 10.6        | 11.1        | 11.2        | 11.2        | 11.1        | 0.7                                    |
| <b>Total</b>                      | <b>30.9</b> | <b>32.1</b> | <b>33.2</b> | <b>34.7</b> | <b>35.1</b> | <b>35.5</b> | <b>34.5</b> | <b>0.3</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 0.3         | 0.3         | 0.1         | 0.3         | 0.3         | 0.3         | 0.3         | -0.2                                   |
| Natural gas                       | 6.1         | 6.5         | 6.3         | 6.2         | 6.4         | 6.5         | 6.3         | -0.1                                   |
| Coal                              | 2.1         | 2.5         | 2.5         | 2.4         | 2.6         | 2.8         | 2.8         | 0.5                                    |
| Nuclear                           | 1.8         | 1.8         | 2.5         | 2.9         | 2.6         | 2.5         | 2.4         | 1.0                                    |
| Renewables                        | 1.6         | 1.6         | 1.7         | 2.1         | 2.3         | 2.4         | 2.4         | 1.4                                    |
| <b>Total</b>                      | <b>11.9</b> | <b>12.6</b> | <b>13.1</b> | <b>13.9</b> | <b>14.1</b> | <b>14.4</b> | <b>14.2</b> | <b>0.4</b>                             |
| <b>Unspecified sector</b>         | <b>-0.2</b> | <b>-0.5</b> | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>0.2</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 6.9         | 7.0         | 7.7         | 8.1         | 8.0         | 8.0         | 7.7         | 0.3                                    |
| Natural gas                       | 15.7        | 16.1        | 15.7        | 16.2        | 16.6        | 16.9        | 16.4        | 0.1                                    |
| Coal                              | 4.7         | 5.4         | 5.3         | 5.3         | 5.5         | 5.7         | 5.5         | 0.1                                    |
| Nuclear                           | 1.8         | 1.8         | 2.5         | 2.9         | 2.6         | 2.5         | 2.4         | 1.0                                    |
| Renewables                        | 1.7         | 1.7         | 1.8         | 2.2         | 2.4         | 2.5         | 2.5         | 1.3                                    |
| <b>Total</b>                      | <b>30.9</b> | <b>32.1</b> | <b>33.2</b> | <b>34.7</b> | <b>35.1</b> | <b>35.5</b> | <b>34.5</b> | <b>0.3</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F12. Delivered energy consumption in Other Non-OECD Europe and Eurasia by end-use sector and fuel, 2011–40 (quadrillion Btu)**

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.2         | 0.2         | 0.1         | 0.1         | 0.1         | 0.0                                    |
| Natural gas                       | 1.8         | 1.8         | 2.3         | 2.5         | 2.7         | 2.9         | 3.0         | 1.8                                    |
| Coal                              | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | -0.2                                   |
| Electricity                       | 0.5         | 0.5         | 0.6         | 0.7         | 0.9         | 1.0         | 1.1         | 3.0                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.8                                    |
| <b>Total</b>                      | <b>2.7</b>  | <b>2.7</b>  | <b>3.3</b>  | <b>3.6</b>  | <b>3.9</b>  | <b>4.2</b>  | <b>4.5</b>  | <b>1.9</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.1         | 0.9                                    |
| Natural gas                       | 0.6         | 0.6         | 0.8         | 0.9         | 1.0         | 1.1         | 1.1         | 1.9                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | -0.3                                   |
| Electricity                       | 0.3         | 0.3         | 0.4         | 0.4         | 0.5         | 0.6         | 0.7         | 2.9                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.0                                    |
| <b>Total</b>                      | <b>1.1</b>  | <b>1.0</b>  | <b>1.3</b>  | <b>1.5</b>  | <b>1.6</b>  | <b>1.7</b>  | <b>1.8</b>  | <b>2.1</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 1.3         | 1.3         | 1.2         | 1.3         | 1.3         | 1.3         | 1.3         | 0.0                                    |
| Natural gas                       | 2.9         | 2.8         | 2.3         | 2.5         | 2.6         | 2.7         | 2.7         | -0.1                                   |
| Coal                              | 1.7         | 1.7         | 1.2         | 1.2         | 1.3         | 1.3         | 1.3         | -0.8                                   |
| Electricity                       | 1.1         | 1.1         | 0.9         | 0.9         | 1.0         | 1.0         | 1.0         | -0.2                                   |
| Renewables                        | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2                                    |
| <b>Total</b>                      | <b>7.2</b>  | <b>6.9</b>  | <b>5.7</b>  | <b>6.0</b>  | <b>6.3</b>  | <b>6.5</b>  | <b>6.5</b>  | <b>-0.2</b>                            |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 2.1         | 2.1         | 2.4         | 2.7         | 2.8         | 2.9         | 3.0         | 1.2                                    |
| Natural gas                       | 0.3         | 0.2         | 0.3         | 0.3         | 0.4         | 0.4         | 0.5         | 2.5                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.1         | 0.1         | 0.1         | 0.1         | 1.0                                    |
| <b>Total</b>                      | <b>2.4</b>  | <b>2.4</b>  | <b>2.8</b>  | <b>3.0</b>  | <b>3.2</b>  | <b>3.4</b>  | <b>3.6</b>  | <b>1.4</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 3.7         | 3.6         | 3.8         | 4.1         | 4.3         | 4.4         | 4.5         | 0.8                                    |
| Natural gas                       | 5.6         | 5.5         | 5.7         | 6.3         | 6.8         | 7.1         | 7.3         | 1.0                                    |
| Coal                              | 2.0         | 1.9         | 1.4         | 1.5         | 1.5         | 1.5         | 1.5         | -0.7                                   |
| Electricity                       | 1.9         | 1.9         | 2.0         | 2.2         | 2.4         | 2.7         | 2.9         | 1.4                                    |
| Renewables                        | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2                                    |
| Delivered energy                  | <b>13.3</b> | <b>13.0</b> | <b>13.0</b> | <b>14.1</b> | <b>15.1</b> | <b>15.8</b> | <b>16.3</b> | <b>0.8</b>                             |
| Electricity-related losses        | 5.7         | 5.6         | 5.7         | 5.9         | 6.2         | 6.5         | 6.8         | 0.7                                    |
| <b>Total</b>                      | <b>19.0</b> | <b>18.6</b> | <b>18.7</b> | <b>20.1</b> | <b>21.3</b> | <b>22.4</b> | <b>23.1</b> | <b>0.8</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 0.2         | 0.2         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | -1.7                                   |
| Natural gas                       | 2.0         | 2.0         | 1.7         | 2.1         | 2.4         | 2.7         | 3.0         | 1.4                                    |
| Coal                              | 2.9         | 2.9         | 2.7         | 2.6         | 2.6         | 2.6         | 2.5         | -0.5                                   |
| Nuclear                           | 1.3         | 1.2         | 1.4         | 1.5         | 1.7         | 1.8         | 1.9         | 1.6                                    |
| Renewables                        | 1.2         | 1.2         | 1.5         | 1.5         | 1.5         | 1.7         | 1.8         | 1.6                                    |
| <b>Total</b>                      | <b>7.5</b>  | <b>7.5</b>  | <b>7.3</b>  | <b>7.8</b>  | <b>8.3</b>  | <b>8.9</b>  | <b>9.4</b>  | <b>0.8</b>                             |
| <b>Unspecified sector</b>         | <b>0.1</b>  | <b>0.0</b>  | <b>0.3</b>  | <b>0.3</b>  | <b>0.3</b>  | <b>0.3</b>  | <b>0.3</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 3.9         | 3.8         | 4.3         | 4.6         | 4.7         | 4.8         | 4.9         | 1.0                                    |
| Natural gas                       | 7.6         | 7.5         | 7.4         | 8.3         | 9.1         | 9.8         | 10.3        | 1.1                                    |
| Coal                              | 5.0         | 4.8         | 4.1         | 4.1         | 4.1         | 4.1         | 4.1         | -0.6                                   |
| Nuclear                           | 1.3         | 1.2         | 1.4         | 1.5         | 1.7         | 1.8         | 1.9         | 1.6                                    |
| Renewables                        | 1.3         | 1.3         | 1.6         | 1.6         | 1.6         | 1.8         | 1.9         | 1.5                                    |
| <b>Total</b>                      | <b>19.0</b> | <b>18.6</b> | <b>18.7</b> | <b>20.1</b> | <b>21.3</b> | <b>22.4</b> | <b>23.1</b> | <b>0.8</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: History: Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). Projections: World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F13. Delivered energy consumption in China by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History      |              | Projections  |              |              |              |              | Average annual percent change, 2012–40 |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|                                   | 2011         | 2012         | 2020         | 2025         | 2030         | 2035         | 2040         |  |
| <b>Residential</b>                |              |              |              |              |              |              |              |  |
| Liquids                           | 1.0          | 1.0          | 1.2          | 1.2          | 1.1          | 1.1          | 1.1          | 0.1                                    |
| Natural gas                       | 1.0          | 1.1          | 2.1          | 2.7          | 3.5          | 4.2          | 4.7          | 5.3                                    |
| Coal                              | 3.1          | 3.2          | 2.9          | 2.8          | 2.6          | 2.6          | 2.6          | -0.8                                   |
| Electricity                       | 2.0          | 2.2          | 3.4          | 4.3          | 5.0          | 5.8          | 6.8          | 4.1                                    |
| Renewables                        | 0.0          | 0.6          | 0.7          | 0.7          | 0.7          | 0.8          | 0.8          | 0.8                                    |
| <b>Total</b>                      | <b>7.1</b>   | <b>8.2</b>   | <b>10.2</b>  | <b>11.6</b>  | <b>13.0</b>  | <b>14.4</b>  | <b>15.9</b>  | <b>2.4</b>                             |
| <b>Commercial</b>                 |              |              |              |              |              |              |              |  |
| Liquids                           | 0.5          | 0.7          | 0.7          | 0.7          | 0.7          | 0.7          | 0.7          | 0.4                                    |
| Natural gas                       | 0.3          | 0.3          | 0.5          | 0.6          | 0.7          | 0.8          | 0.8          | 3.2                                    |
| Coal                              | 0.6          | 0.6          | 0.6          | 0.6          | 0.5          | 0.5          | 0.5          | -0.6                                   |
| Electricity                       | 0.8          | 0.9          | 1.4          | 1.7          | 2.1          | 2.5          | 2.8          | 4.3                                    |
| Renewables                        | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.8                                    |
| <b>Total</b>                      | <b>2.2</b>   | <b>2.5</b>   | <b>3.2</b>   | <b>3.6</b>   | <b>4.1</b>   | <b>4.5</b>   | <b>4.8</b>   | <b>2.4</b>                             |
| <b>Industrial</b>                 |              |              |              |              |              |              |              |  |
| Liquids                           | 9.3          | 9.7          | 12.6         | 13.3         | 13.9         | 14.5         | 15.1         | 1.6                                    |
| Natural gas                       | 2.3          | 2.6          | 4.5          | 6.0          | 7.6          | 9.6          | 11.7         | 5.6                                    |
| Coal                              | 32.8         | 33.5         | 39.5         | 40.0         | 39.8         | 39.2         | 38.1         | 0.5                                    |
| Electricity                       | 11.6         | 12.0         | 16.2         | 17.5         | 18.3         | 19.1         | 19.7         | 1.8                                    |
| Renewables                        | 1.1          | 1.2          | 1.6          | 1.7          | 1.7          | 1.8          | 1.9          | 1.6                                    |
| <b>Total</b>                      | <b>56.9</b>  | <b>59.0</b>  | <b>74.5</b>  | <b>78.5</b>  | <b>81.4</b>  | <b>84.2</b>  | <b>86.4</b>  | <b>1.4</b>                             |
| <b>Transportation</b>             |              |              |              |              |              |              |              |  |
| Liquids                           | 11.4         | 12.6         | 17.1         | 19.0         | 20.6         | 22.0         | 22.9         | 2.2                                    |
| Natural gas                       | 0.1          | 0.1          | 0.4          | 0.8          | 1.6          | 2.5          | 3.3          | 13.6                                   |
| Coal                              | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | —                                      |
| Electricity                       | 0.1          | 0.2          | 0.3          | 0.4          | 0.6          | 0.7          | 0.9          | 6.3                                    |
| <b>Total</b>                      | <b>11.6</b>  | <b>12.8</b>  | <b>17.9</b>  | <b>20.3</b>  | <b>22.8</b>  | <b>25.1</b>  | <b>27.1</b>  | <b>2.7</b>                             |
| <b>All end-use sectors</b>        |              |              |              |              |              |              |              |  |
| Liquids                           | 22.1         | 24.0         | 31.7         | 34.2         | 36.4         | 38.3         | 39.8         | 1.8                                    |
| Natural gas                       | 3.6          | 4.1          | 7.5          | 10.3         | 13.5         | 17.0         | 20.5         | 5.9                                    |
| Coal                              | 36.4         | 37.4         | 43.0         | 43.3         | 43.0         | 42.3         | 41.2         | 0.3                                    |
| Electricity                       | 14.5         | 15.2         | 21.3         | 23.9         | 26.0         | 28.1         | 30.1         | 2.5                                    |
| Renewables                        | 1.1          | 1.8          | 2.3          | 2.4          | 2.5          | 2.6          | 2.7          | 1.3                                    |
| Delivered energy                  | <b>77.8</b>  | <b>82.5</b>  | <b>105.8</b> | <b>114.1</b> | <b>121.4</b> | <b>128.3</b> | <b>134.2</b> | <b>1.8</b>                             |
| Electricity-related losses        | 31.7         | 32.5         | 41.5         | 45.3         | 49.0         | 52.4         | 55.9         | 2.0                                    |
| <b>Total</b>                      | <b>109.4</b> | <b>115.0</b> | <b>147.3</b> | <b>159.4</b> | <b>170.4</b> | <b>180.7</b> | <b>190.1</b> | <b>1.8</b>                             |
| <b>Electric power<sup>a</sup></b> |              |              |              |              |              |              |              |  |
| Liquids                           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | -0.7                                   |
| Natural gas                       | 0.8          | 0.8          | 2.0          | 3.9          | 4.8          | 6.6          | 8.3          | 8.5                                    |
| Coal                              | 38.9         | 38.9         | 43.6         | 44.7         | 44.1         | 43.1         | 42.1         | 0.3                                    |
| Nuclear                           | 0.8          | 0.9          | 3.4          | 4.7          | 7.8          | 10.2         | 12.6         | 9.7                                    |
| Renewables                        | 7.8          | 9.5          | 18.8         | 21.2         | 23.7         | 26.2         | 28.7         | 4.0                                    |
| <b>Total</b>                      | <b>48.4</b>  | <b>50.3</b>  | <b>67.8</b>  | <b>74.5</b>  | <b>80.5</b>  | <b>86.2</b>  | <b>91.7</b>  | <b>2.2</b>                             |
| <b>Unspecified sector</b>         | <b>-2.1</b>  | <b>-2.5</b>  | <b>-5.0</b>  | <b>-5.3</b>  | <b>-5.5</b>  | <b>-5.6</b>  | <b>-5.7</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |              |              |              |              |              |              |              |  |
| Liquids                           | 19.5         | 20.9         | 26.7         | 29.0         | 31.0         | 32.7         | 34.1         | 1.8                                    |
| Natural gas                       | 4.9          | 5.3          | 9.5          | 14.1         | 18.3         | 23.7         | 28.8         | 6.2                                    |
| Coal                              | 75.4         | 76.5         | 86.6         | 88.0         | 87.0         | 85.4         | 83.3         | 0.3                                    |
| Nuclear                           | 0.8          | 0.9          | 3.4          | 4.7          | 7.8          | 10.2         | 12.6         | 9.7                                    |
| Renewables                        | 8.9          | 11.4         | 21.0         | 23.7         | 26.2         | 28.8         | 31.3         | 3.7                                    |
| <b>Total</b>                      | <b>109.4</b> | <b>115.0</b> | <b>147.3</b> | <b>159.4</b> | <b>170.4</b> | <b>180.7</b> | <b>190.1</b> | <b>1.8</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F14. Delivered energy consumption in India by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 1.0         | 1.1         | 1.2         | 1.2         | 1.2         | 1.2         | 1.1         | 0.2                                    |
| Natural gas                       | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 0.2         | 2.8                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.0                                    |
| Electricity                       | 0.7         | 0.8         | 1.4         | 1.8         | 2.3         | 2.9         | 3.5         | 5.5                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.8                                    |
| <b>Total</b>                      | <b>2.0</b>  | <b>2.1</b>  | <b>2.8</b>  | <b>3.3</b>  | <b>3.8</b>  | <b>4.3</b>  | <b>5.0</b>  | <b>3.2</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 3.4                                    |
| Natural gas                       | 0.0         | 0.0         | 0.0         | 0.1         | 0.1         | 0.1         | 0.1         | 2.8                                    |
| Coal                              | 0.1         | 0.2         | 0.2         | 0.2         | 0.3         | 0.3         | 0.3         | 2.6                                    |
| Electricity                       | 0.3         | 0.3         | 0.5         | 0.6         | 0.7         | 0.8         | 1.0         | 4.2                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.7                                    |
| <b>Total</b>                      | <b>0.5</b>  | <b>0.6</b>  | <b>0.8</b>  | <b>1.0</b>  | <b>1.1</b>  | <b>1.3</b>  | <b>1.5</b>  | <b>3.7</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 3.6         | 3.7         | 4.2         | 4.8         | 5.4         | 6.2         | 7.1         | 2.4                                    |
| Natural gas                       | 1.4         | 1.4         | 1.7         | 2.0         | 2.4         | 2.9         | 3.3         | 3.0                                    |
| Coal                              | 4.1         | 4.5         | 5.0         | 5.8         | 6.9         | 8.1         | 9.6         | 2.8                                    |
| Electricity                       | 1.6         | 1.8         | 2.1         | 2.4         | 2.7         | 3.0         | 3.5         | 2.4                                    |
| Renewables                        | 1.7         | 1.7         | 1.8         | 2.0         | 2.3         | 2.8         | 3.2         | 2.2                                    |
| <b>Total</b>                      | <b>12.4</b> | <b>13.1</b> | <b>14.7</b> | <b>17.0</b> | <b>19.7</b> | <b>22.9</b> | <b>26.7</b> | <b>2.6</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 3.1         | 3.1         | 4.3         | 5.2         | 6.2         | 7.6         | 9.4         | 4.0                                    |
| Natural gas                       | 0.1         | 0.1         | 0.2         | 0.3         | 0.6         | 0.9         | 1.4         | 10.8                                   |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 5.3                                    |
| <b>Total</b>                      | <b>3.2</b>  | <b>3.3</b>  | <b>4.6</b>  | <b>5.6</b>  | <b>6.9</b>  | <b>8.7</b>  | <b>10.9</b> | <b>4.4</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 7.7         | 8.0         | 9.8         | 11.3        | 12.9        | 15.1        | 17.8        | 2.9                                    |
| Natural gas                       | 1.6         | 1.6         | 2.0         | 2.5         | 3.2         | 4.0         | 4.9         | 4.1                                    |
| Coal                              | 4.4         | 4.7         | 5.3         | 6.1         | 7.2         | 8.5         | 10.0        | 2.7                                    |
| Electricity                       | 2.7         | 2.9         | 4.0         | 4.9         | 5.8         | 6.9         | 8.2         | 3.7                                    |
| Renewables                        | 1.7         | 1.8         | 1.8         | 2.0         | 2.4         | 2.8         | 3.3         | 2.2                                    |
| Delivered energy                  | <b>18.0</b> | <b>19.0</b> | <b>22.9</b> | <b>26.9</b> | <b>31.6</b> | <b>37.3</b> | <b>44.2</b> | <b>3.1</b>                             |
| Electricity-related losses        | 6.9         | 7.2         | 9.9         | 11.6        | 13.3        | 15.5        | 18.2        | 3.4                                    |
| <b>Total</b>                      | <b>25.0</b> | <b>26.2</b> | <b>32.8</b> | <b>38.4</b> | <b>44.9</b> | <b>52.8</b> | <b>62.3</b> | <b>3.2</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2                                    |
| Natural gas                       | 0.8         | 0.6         | 0.4         | 0.5         | 0.8         | 1.2         | 1.4         | 3.3                                    |
| Coal                              | 7.5         | 8.2         | 10.0        | 10.5        | 11.0        | 12.6        | 14.7        | 2.1                                    |
| Nuclear                           | 0.4         | 0.4         | 0.8         | 1.3         | 2.2         | 2.4         | 2.6         | 7.3                                    |
| Renewables                        | 1.7         | 1.5         | 2.9         | 4.3         | 5.3         | 6.3         | 7.5         | 5.9                                    |
| <b>Total</b>                      | <b>10.4</b> | <b>10.8</b> | <b>14.1</b> | <b>16.7</b> | <b>19.4</b> | <b>22.6</b> | <b>26.4</b> | <b>3.2</b>                             |
| <b>Unspecified sector</b>         | <b>-0.8</b> | <b>-0.7</b> | <b>-0.3</b> | <b>-0.3</b> | <b>-0.3</b> | <b>-0.2</b> | <b>-0.1</b> | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 7.0         | 7.3         | 9.7         | 11.1        | 12.7        | 15.0        | 17.8        | 3.2                                    |
| Natural gas                       | 2.4         | 2.2         | 2.5         | 3.1         | 4.0         | 5.2         | 6.4         | 3.9                                    |
| Coal                              | 11.9        | 13.0        | 15.3        | 16.7        | 18.3        | 21.1        | 24.8        | 2.3                                    |
| Nuclear                           | 0.4         | 0.4         | 0.8         | 1.3         | 2.2         | 2.4         | 2.6         | 7.3                                    |
| Renewables                        | 3.3         | 3.3         | 4.7         | 6.4         | 7.7         | 9.1         | 10.8        | 4.3                                    |
| <b>Total</b>                      | <b>25.0</b> | <b>26.2</b> | <b>32.8</b> | <b>38.4</b> | <b>44.9</b> | <b>52.8</b> | <b>62.3</b> | <b>3.2</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F15. Delivered energy consumption in Other Non-OECD Asia by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.6         | 0.6         | 0.7         | 0.7         | 0.6         | 0.6         | 0.6         | 0.1                                    |
| Natural gas                       | 0.4         | 0.4         | 0.5         | 0.6         | 0.6         | 0.6         | 0.7         | 1.7                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.0                                    |
| Electricity                       | 1.1         | 1.2         | 1.6         | 1.9         | 2.2         | 2.5         | 2.9         | 3.2                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.9                                    |
| <b>Total</b>                      | <b>2.2</b>  | <b>2.3</b>  | <b>2.8</b>  | <b>3.2</b>  | <b>3.5</b>  | <b>3.9</b>  | <b>4.3</b>  | <b>2.3</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.2         | 0.2         | 0.3         | 0.3         | 0.3         | 0.3         | 0.4         | 1.5                                    |
| Natural gas                       | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.6                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | -0.3                                   |
| Electricity                       | 0.9         | 1.0         | 1.4         | 1.7         | 2.0         | 2.4         | 2.7         | 3.8                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0                                    |
| <b>Total</b>                      | <b>1.3</b>  | <b>1.3</b>  | <b>1.8</b>  | <b>2.2</b>  | <b>2.5</b>  | <b>2.9</b>  | <b>3.2</b>  | <b>3.3</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 5.4         | 5.7         | 6.3         | 7.0         | 7.6         | 8.4         | 9.2         | 1.8                                    |
| Natural gas                       | 3.6         | 3.6         | 4.1         | 4.6         | 5.2         | 5.9         | 6.6         | 2.2                                    |
| Coal                              | 2.7         | 2.7         | 2.9         | 3.2         | 3.5         | 3.9         | 4.4         | 1.8                                    |
| Electricity                       | 1.5         | 1.6         | 1.8         | 2.0         | 2.2         | 2.5         | 2.8         | 2.0                                    |
| Renewables                        | 2.1         | 2.1         | 2.3         | 2.6         | 2.9         | 3.2         | 3.5         | 1.8                                    |
| <b>Total</b>                      | <b>15.2</b> | <b>15.7</b> | <b>17.4</b> | <b>19.4</b> | <b>21.5</b> | <b>23.9</b> | <b>26.6</b> | <b>1.9</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 7.1         | 7.3         | 8.4         | 9.6         | 10.9        | 12.6        | 14.6        | 2.5                                    |
| Natural gas                       | 0.3         | 0.3         | 0.7         | 1.0         | 1.3         | 1.7         | 2.4         | 7.6                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 5.3                                    |
| <b>Total</b>                      | <b>7.3</b>  | <b>7.6</b>  | <b>9.1</b>  | <b>10.6</b> | <b>12.2</b> | <b>14.3</b> | <b>17.0</b> | <b>2.9</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 13.2        | 13.8        | 15.7        | 17.5        | 19.5        | 22.0        | 24.8        | 2.1                                    |
| Natural gas                       | 4.3         | 4.4         | 5.3         | 6.3         | 7.2         | 8.4         | 9.8         | 2.9                                    |
| Coal                              | 2.8         | 2.8         | 2.9         | 3.3         | 3.6         | 4.0         | 4.5         | 1.7                                    |
| Electricity                       | 3.6         | 3.8         | 4.8         | 5.6         | 6.5         | 7.5         | 8.5         | 2.9                                    |
| Renewables                        | 2.1         | 2.1         | 2.3         | 2.6         | 2.9         | 3.2         | 3.5         | 1.8                                    |
| Delivered energy                  | <b>26.0</b> | <b>26.9</b> | <b>31.2</b> | <b>35.3</b> | <b>39.8</b> | <b>45.0</b> | <b>51.1</b> | <b>2.3</b>                             |
| Electricity-related losses        | 7.7         | 7.9         | 11.5        | 13.2        | 14.8        | 16.6        | 18.5        | 3.1                                    |
| <b>Total</b>                      | <b>33.7</b> | <b>34.7</b> | <b>42.7</b> | <b>48.6</b> | <b>54.6</b> | <b>61.6</b> | <b>69.6</b> | <b>2.5</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 1.3         | 1.2         | 1.1         | 1.1         | 1.0         | 1.0         | 0.9         | -0.7                                   |
| Natural gas                       | 3.5         | 3.6         | 4.1         | 4.6         | 5.6         | 6.7         | 7.6         | 2.6                                    |
| Coal                              | 3.1         | 3.3         | 4.4         | 5.0         | 5.4         | 6.1         | 7.0         | 2.7                                    |
| Nuclear                           | 0.4         | 0.4         | 0.6         | 0.9         | 0.9         | 0.9         | 1.0         | 2.9                                    |
| Renewables                        | 1.9         | 2.0         | 3.5         | 4.5         | 5.3         | 6.1         | 7.0         | 4.5                                    |
| <b>Total</b>                      | <b>10.2</b> | <b>10.6</b> | <b>13.8</b> | <b>16.1</b> | <b>18.4</b> | <b>20.8</b> | <b>23.4</b> | <b>2.9</b>                             |
| <b>Unspecified sector</b>         | <b>1.1</b>  | <b>1.1</b>  | <b>2.5</b>  | <b>2.7</b>  | <b>3.0</b>  | <b>3.2</b>  | <b>3.5</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 15.6        | 16.0        | 19.4        | 21.3        | 23.5        | 26.2        | 29.3        | 2.2                                    |
| Natural gas                       | 7.8         | 8.0         | 9.5         | 10.9        | 12.9        | 15.1        | 17.4        | 2.8                                    |
| Coal                              | 5.9         | 6.1         | 7.4         | 8.3         | 9.1         | 10.1        | 11.5        | 2.3                                    |
| Nuclear                           | 0.4         | 0.4         | 0.6         | 0.9         | 0.9         | 0.9         | 1.0         | 2.9                                    |
| Renewables                        | 3.9         | 4.1         | 5.8         | 7.1         | 8.2         | 9.3         | 10.5        | 3.4                                    |
| <b>Total</b>                      | <b>33.7</b> | <b>34.7</b> | <b>42.7</b> | <b>48.6</b> | <b>54.6</b> | <b>61.6</b> | <b>69.6</b> | <b>2.5</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F16. Delivered energy consumption in the Middle East by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.7         | 0.7         | 0.8         | 0.8         | 0.8         | 0.7         | 0.7         | 0.1                                    |
| Natural gas                       | 1.7         | 1.5         | 1.6         | 1.7         | 1.8         | 1.9         | 2.0         | 1.0                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0                                    |
| Electricity                       | 1.2         | 1.3         | 1.7         | 2.0         | 2.3         | 2.7         | 3.1         | 3.3                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.8                                    |
| <b>Total</b>                      | <b>3.5</b>  | <b>3.5</b>  | <b>4.1</b>  | <b>4.5</b>  | <b>4.9</b>  | <b>5.4</b>  | <b>5.9</b>  | <b>1.9</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.0                                    |
| Natural gas                       | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.3         | 0.3         | 0.4                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.7         | 0.7         | 0.9         | 1.1         | 1.3         | 1.4         | 1.6         | 2.9                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.8                                    |
| <b>Total</b>                      | <b>1.0</b>  | <b>1.1</b>  | <b>1.3</b>  | <b>1.5</b>  | <b>1.7</b>  | <b>1.8</b>  | <b>2.0</b>  | <b>2.3</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 7.6         | 7.9         | 8.5         | 9.3         | 10.4        | 11.5        | 12.4        | 1.6                                    |
| Natural gas                       | 7.9         | 8.6         | 10.2        | 11.6        | 13.4        | 15.2        | 16.7        | 2.4                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 2.2                                    |
| Electricity                       | 0.6         | 0.5         | 0.6         | 0.7         | 0.8         | 0.9         | 0.9         | 2.1                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.5                                    |
| <b>Total</b>                      | <b>16.1</b> | <b>17.1</b> | <b>19.4</b> | <b>21.7</b> | <b>24.7</b> | <b>27.7</b> | <b>30.3</b> | <b>2.1</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 5.0         | 5.2         | 5.7         | 6.4         | 7.0         | 7.7         | 8.3         | 1.7                                    |
| Natural gas                       | 0.2         | 0.3         | 0.6         | 0.7         | 0.8         | 0.9         | 1.1         | 5.4                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 5.2                                    |
| <b>Total</b>                      | <b>5.2</b>  | <b>5.5</b>  | <b>6.3</b>  | <b>7.1</b>  | <b>7.9</b>  | <b>8.6</b>  | <b>9.4</b>  | <b>1.9</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 13.4        | 13.9        | 15.1        | 16.5        | 18.3        | 20.0        | 21.6        | 1.6                                    |
| Natural gas                       | 10.0        | 10.6        | 12.6        | 14.3        | 16.3        | 18.3        | 20.1        | 2.3                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 2.2                                    |
| Electricity                       | 2.4         | 2.5         | 3.2         | 3.8         | 4.4         | 5.0         | 5.7         | 3.0                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.1                                    |
| Delivered energy                  | <b>25.9</b> | <b>27.1</b> | <b>31.0</b> | <b>34.8</b> | <b>39.2</b> | <b>43.6</b> | <b>47.5</b> | <b>2.0</b>                             |
| Electricity-related losses        | 4.0         | 4.6         | 9.8         | 10.6        | 11.6        | 13.0        | 14.3        | 4.2                                    |
| <b>Total</b>                      | <b>29.9</b> | <b>31.7</b> | <b>40.8</b> | <b>45.4</b> | <b>50.7</b> | <b>56.6</b> | <b>61.8</b> | <b>2.4</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 2.6         | 2.8         | 2.5         | 1.7         | 1.3         | 1.2         | 1.2         | -3.2                                   |
| Natural gas                       | 4.5         | 4.8         | 6.0         | 7.2         | 8.4         | 9.1         | 10.3        | 2.8                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.1         | —                                      |
| Nuclear                           | 0.0         | 0.0         | 0.4         | 0.6         | 1.0         | 1.3         | 1.6         | 18.5                                   |
| Renewables                        | 0.2         | 0.2         | 0.7         | 1.4         | 1.5         | 2.3         | 2.6         | 9.3                                    |
| <b>Total</b>                      | <b>7.3</b>  | <b>7.8</b>  | <b>9.7</b>  | <b>11.0</b> | <b>12.2</b> | <b>14.0</b> | <b>15.6</b> | <b>2.5</b>                             |
| <b>Unspecified sector</b>         | <b>-0.9</b> | <b>-0.7</b> | <b>3.3</b>  | <b>3.5</b>  | <b>3.7</b>  | <b>4.1</b>  | <b>4.4</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 15.1        | 16.0        | 20.9        | 21.7        | 23.3        | 25.3        | 27.1        | 1.9                                    |
| Natural gas                       | 14.5        | 15.4        | 18.6        | 21.5        | 24.7        | 27.4        | 30.3        | 2.5                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 0.2         | 3.2                                    |
| Nuclear                           | 0.0         | 0.0         | 0.4         | 0.6         | 1.0         | 1.3         | 1.6         | 18.5                                   |
| Renewables                        | 0.2         | 0.2         | 0.8         | 1.4         | 1.6         | 2.3         | 2.6         | 9.0                                    |
| <b>Total</b>                      | <b>29.9</b> | <b>31.7</b> | <b>40.8</b> | <b>45.4</b> | <b>50.7</b> | <b>56.6</b> | <b>61.8</b> | <b>2.4</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.



**Table F17. Delivered energy consumption in Africa by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.7         | 0.7         | 0.8         | 0.8         | 0.8         | 0.8         | 0.8         | 0.3                                    |
| Natural gas                       | 0.2         | 0.3         | 0.4         | 0.4         | 0.5         | 0.5         | 0.5         | 1.9                                    |
| Coal                              | 0.1         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.0                                    |
| Electricity                       | 0.6         | 0.7         | 0.9         | 1.1         | 1.3         | 1.6         | 1.9         | 3.8                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.8                                    |
| <b>Total</b>                      | <b>1.6</b>  | <b>1.8</b>  | <b>2.2</b>  | <b>2.4</b>  | <b>2.7</b>  | <b>3.0</b>  | <b>3.4</b>  | <b>2.2</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.5                                    |
| Natural gas                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.3                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 2.3                                    |
| Electricity                       | 0.3         | 0.4         | 0.5         | 0.6         | 0.7         | 0.8         | 1.0         | 3.7                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 2.5                                    |
| <b>Total</b>                      | <b>0.5</b>  | <b>0.5</b>  | <b>0.7</b>  | <b>0.8</b>  | <b>0.9</b>  | <b>1.1</b>  | <b>1.3</b>  | <b>3.2</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 1.9         | 1.9         | 2.1         | 2.4         | 2.6         | 2.9         | 3.3         | 2.0                                    |
| Natural gas                       | 1.8         | 2.0         | 2.5         | 2.9         | 3.3         | 3.7         | 4.1         | 2.6                                    |
| Coal                              | 1.7         | 1.7         | 1.9         | 2.2         | 2.4         | 2.7         | 3.0         | 2.0                                    |
| Electricity                       | 1.0         | 1.0         | 1.1         | 1.2         | 1.4         | 1.6         | 1.8         | 2.1                                    |
| Renewables                        | 3.2         | 3.4         | 3.9         | 4.4         | 5.1         | 5.8         | 6.6         | 2.4                                    |
| <b>Total</b>                      | <b>9.5</b>  | <b>10.0</b> | <b>11.4</b> | <b>13.1</b> | <b>14.8</b> | <b>16.7</b> | <b>18.8</b> | <b>2.3</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 4.1         | 4.2         | 5.2         | 6.0         | 6.6         | 7.5         | 8.7         | 2.6                                    |
| Natural gas                       | 0.0         | 0.0         | 0.1         | 0.2         | 0.6         | 0.9         | 1.3         | 13.5                                   |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.1         | 3.4                                    |
| <b>Total</b>                      | <b>4.1</b>  | <b>4.3</b>  | <b>5.3</b>  | <b>6.2</b>  | <b>7.2</b>  | <b>8.4</b>  | <b>10.1</b> | <b>3.1</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 6.7         | 6.9         | 8.2         | 9.2         | 10.1        | 11.3        | 12.9        | 2.3                                    |
| Natural gas                       | 2.1         | 2.4         | 3.0         | 3.5         | 4.3         | 5.1         | 6.0         | 3.3                                    |
| Coal                              | 1.9         | 2.0         | 2.2         | 2.5         | 2.7         | 3.0         | 3.3         | 1.9                                    |
| Electricity                       | 2.0         | 2.0         | 2.5         | 2.9         | 3.4         | 4.1         | 4.7         | 3.0                                    |
| Renewables                        | 3.2         | 3.4         | 3.9         | 4.5         | 5.1         | 5.8         | 6.6         | 2.4                                    |
| Delivered energy                  | <b>15.8</b> | <b>16.7</b> | <b>19.7</b> | <b>22.6</b> | <b>25.6</b> | <b>29.2</b> | <b>33.5</b> | <b>2.5</b>                             |
| Electricity-related losses        | 4.3         | 4.8         | 6.5         | 7.4         | 8.1         | 9.2         | 10.4        | 2.8                                    |
| <b>Total</b>                      | <b>20.1</b> | <b>21.5</b> | <b>26.1</b> | <b>30.0</b> | <b>33.8</b> | <b>38.4</b> | <b>44.0</b> | <b>2.6</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 0.5         | 0.6         | 0.7         | 0.6         | 0.6         | 0.6         | 0.6         | -0.4                                   |
| Natural gas                       | 2.0         | 2.3         | 2.8         | 3.0         | 3.8         | 4.8         | 5.7         | 3.3                                    |
| Coal                              | 2.7         | 2.8         | 3.2         | 3.3         | 3.3         | 3.4         | 3.6         | 0.9                                    |
| Nuclear                           | 0.1         | 0.1         | 0.1         | 0.2         | 0.3         | 0.3         | 0.4         | 4.4                                    |
| Renewables                        | 1.1         | 1.1         | 1.5         | 2.3         | 2.7         | 3.2         | 3.7         | 4.3                                    |
| <b>Total</b>                      | <b>6.5</b>  | <b>7.0</b>  | <b>8.3</b>  | <b>9.5</b>  | <b>10.7</b> | <b>12.3</b> | <b>14.0</b> | <b>2.5</b>                             |
| <b>Unspecified sector</b>         | <b>-0.2</b> | <b>-0.1</b> | <b>0.7</b>  | <b>0.8</b>  | <b>0.8</b>  | <b>1.0</b>  | <b>1.1</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 7.0         | 7.4         | 9.5         | 10.6        | 11.6        | 12.8        | 14.6        | 2.5                                    |
| Natural gas                       | 4.1         | 4.7         | 5.8         | 6.6         | 8.1         | 9.9         | 11.7        | 3.3                                    |
| Coal                              | 4.6         | 4.8         | 5.4         | 5.8         | 6.0         | 6.4         | 7.0         | 1.4                                    |
| Nuclear                           | 0.1         | 0.1         | 0.1         | 0.2         | 0.3         | 0.3         | 0.4         | 4.4                                    |
| Renewables                        | 4.3         | 4.5         | 5.4         | 6.8         | 7.8         | 9.0         | 10.3        | 3.0                                    |
| <b>Total</b>                      | <b>20.1</b> | <b>21.5</b> | <b>26.1</b> | <b>30.0</b> | <b>33.8</b> | <b>38.4</b> | <b>44.0</b> | <b>2.6</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F18. Delivered energy consumption in Brazil by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.3         | 0.3         | 0.3         | 0.3         | 0.3         | 0.3         | 0.3         | 0.0                                    |
| Natural gas                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 2.0                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.5         | 0.5         | 0.5         | 0.6         | 0.7         | 0.8         | 0.9         | 2.4                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| <b>Total</b>                      | <b>0.7</b>  | <b>0.8</b>  | <b>0.9</b>  | <b>0.9</b>  | <b>1.0</b>  | <b>1.1</b>  | <b>1.2</b>  | <b>1.6</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.3                                    |
| Natural gas                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 1.4                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.5         | 0.5         | 0.5         | 0.6         | 0.6         | 0.7         | 0.8         | 1.8                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| <b>Total</b>                      | <b>0.5</b>  | <b>0.5</b>  | <b>0.6</b>  | <b>0.6</b>  | <b>0.7</b>  | <b>0.8</b>  | <b>0.8</b>  | <b>1.8</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 2.9         | 3.0         | 2.8         | 3.0         | 3.2         | 3.5         | 3.7         | 0.8                                    |
| Natural gas                       | 0.7         | 0.8         | 0.8         | 1.0         | 1.1         | 1.3         | 1.5         | 2.4                                    |
| Coal                              | 0.5         | 0.5         | 0.4         | 0.4         | 0.5         | 0.5         | 0.6         | 0.7                                    |
| Electricity                       | 0.7         | 0.7         | 0.7         | 0.8         | 0.9         | 1.1         | 1.2         | 1.9                                    |
| Renewables                        | 2.5         | 2.5         | 2.2         | 2.4         | 2.6         | 2.8         | 3.0         | 0.6                                    |
| <b>Total</b>                      | <b>7.3</b>  | <b>7.5</b>  | <b>6.9</b>  | <b>7.7</b>  | <b>8.4</b>  | <b>9.2</b>  | <b>10.0</b> | <b>1.0</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 2.8         | 2.8         | 3.0         | 3.3         | 3.7         | 4.0         | 4.4         | 1.6                                    |
| Natural gas                       | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.3         | 3.7                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 4.6                                    |
| <b>Total</b>                      | <b>2.9</b>  | <b>2.9</b>  | <b>3.1</b>  | <b>3.4</b>  | <b>3.8</b>  | <b>4.2</b>  | <b>4.7</b>  | <b>1.7</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 5.9         | 6.1         | 6.1         | 6.7         | 7.3         | 7.8         | 8.5         | 1.2                                    |
| Natural gas                       | 0.8         | 0.9         | 0.9         | 1.1         | 1.3         | 1.5         | 1.8         | 2.5                                    |
| Coal                              | 0.5         | 0.5         | 0.4         | 0.4         | 0.5         | 0.5         | 0.6         | 0.7                                    |
| Electricity                       | 1.6         | 1.6         | 1.8         | 2.0         | 2.3         | 2.6         | 2.9         | 2.0                                    |
| Renewables                        | 2.5         | 2.5         | 2.2         | 2.4         | 2.6         | 2.8         | 3.0         | 0.6                                    |
| Delivered energy                  | <b>11.4</b> | <b>11.6</b> | <b>11.4</b> | <b>12.7</b> | <b>13.9</b> | <b>15.2</b> | <b>16.7</b> | <b>1.3</b>                             |
| Electricity-related losses        | 3.4         | 3.6         | 4.9         | 5.5         | 6.1         | 6.8         | 7.6         | 2.7                                    |
| <b>Total</b>                      | <b>14.8</b> | <b>15.2</b> | <b>16.3</b> | <b>18.1</b> | <b>20.0</b> | <b>22.0</b> | <b>24.3</b> | <b>1.7</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.2         | 0.2         | 0.1         | 0.1         | 0.1         | 0.1         | -0.6                                   |
| Natural gas                       | 0.1         | 0.3         | 0.5         | 0.5         | 0.5         | 0.5         | 0.5         | 2.3                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.4                                    |
| Nuclear                           | 0.2         | 0.2         | 0.3         | 0.3         | 0.6         | 0.6         | 0.6         | 4.8                                    |
| Renewables                        | 4.5         | 4.3         | 4.7         | 5.5         | 6.0         | 7.0         | 8.1         | 2.3                                    |
| <b>Total</b>                      | <b>4.9</b>  | <b>5.0</b>  | <b>5.8</b>  | <b>6.6</b>  | <b>7.4</b>  | <b>8.3</b>  | <b>9.4</b>  | <b>2.3</b>                             |
| <b>Unspecified sector</b>         | <b>0.2</b>  | <b>0.3</b>  | <b>0.9</b>  | <b>0.9</b>  | <b>1.0</b>  | <b>1.1</b>  | <b>1.1</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 6.2         | 6.6         | 7.1         | 7.8         | 8.4         | 9.0         | 9.7         | 1.4                                    |
| Natural gas                       | 0.9         | 1.1         | 1.4         | 1.6         | 1.8         | 2.0         | 2.3         | 2.6                                    |
| Coal                              | 0.5         | 0.6         | 0.5         | 0.6         | 0.6         | 0.7         | 0.7         | 0.8                                    |
| Nuclear                           | 0.2         | 0.2         | 0.3         | 0.3         | 0.6         | 0.6         | 0.6         | 4.8                                    |
| Renewables                        | 7.0         | 6.8         | 7.0         | 8.0         | 8.6         | 9.8         | 11.1        | 1.7                                    |
| <b>Total</b>                      | <b>14.8</b> | <b>15.2</b> | <b>16.3</b> | <b>18.1</b> | <b>20.0</b> | <b>22.0</b> | <b>24.3</b> | <b>1.7</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** World Energy Projection System Plus (2016), run IEO2016-reference\_final\_2016.02.19\_115008.

**Table F19. Delivered energy consumption in Other Non-OECD Americas by end-use sector and fuel, 2011–40**  
(quadrillion Btu)

| Sector/fuel                       | History     |             | Projections |             |             |             |             | Average annual percent change, 2012–40 |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
|                                   | 2011        | 2012        | 2020        | 2025        | 2030        | 2035        | 2040        |  |
| <b>Residential</b>                |             |             |             |             |             |             |             |  |
| Liquids                           | 0.3         | 0.3         | 0.4         | 0.4         | 0.3         | 0.3         | 0.3         | 0.0                                    |
| Natural gas                       | 0.4         | 0.4         | 0.6         | 0.6         | 0.7         | 0.7         | 0.8         | 2.1                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | -0.1                                   |
| Electricity                       | 0.5         | 0.5         | 0.7         | 0.7         | 0.8         | 0.9         | 1.0         | 2.3                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0                                    |
| <b>Total</b>                      | <b>1.3</b>  | <b>1.3</b>  | <b>1.6</b>  | <b>1.7</b>  | <b>1.8</b>  | <b>2.0</b>  | <b>2.1</b>  | <b>1.8</b>                             |
| <b>Commercial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.1                                    |
| Natural gas                       | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 1.4                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.4         | 0.4         | 0.5         | 0.5         | 0.6         | 0.6         | 0.7         | 2.2                                    |
| Renewables                        | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0                                    |
| <b>Total</b>                      | <b>0.5</b>  | <b>0.5</b>  | <b>0.6</b>  | <b>0.7</b>  | <b>0.8</b>  | <b>0.8</b>  | <b>0.9</b>  | <b>2.0</b>                             |
| <b>Industrial</b>                 |             |             |             |             |             |             |             |  |
| Liquids                           | 2.5         | 2.5         | 2.3         | 2.4         | 2.5         | 2.6         | 2.7         | 0.2                                    |
| Natural gas                       | 2.6         | 2.4         | 2.4         | 2.6         | 2.7         | 3.0         | 3.2         | 1.0                                    |
| Coal                              | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.3         | 1.3                                    |
| Electricity                       | 0.6         | 0.6         | 0.6         | 0.6         | 0.6         | 0.7         | 0.7         | 0.5                                    |
| Renewables                        | 0.6         | 0.6         | 0.5         | 0.5         | 0.6         | 0.6         | 0.6         | 0.0                                    |
| <b>Total</b>                      | <b>6.4</b>  | <b>6.3</b>  | <b>5.9</b>  | <b>6.3</b>  | <b>6.6</b>  | <b>7.0</b>  | <b>7.5</b>  | <b>0.6</b>                             |
| <b>Transportation</b>             |             |             |             |             |             |             |             |  |
| Liquids                           | 3.3         | 3.3         | 3.7         | 4.0         | 4.2         | 4.5         | 5.0         | 1.4                                    |
| Natural gas                       | 0.2         | 0.2         | 0.4         | 0.6         | 0.8         | 1.0         | 1.2         | 5.8                                    |
| Coal                              | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | —                                      |
| Electricity                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 3.7                                    |
| <b>Total</b>                      | <b>3.5</b>  | <b>3.6</b>  | <b>4.1</b>  | <b>4.5</b>  | <b>5.0</b>  | <b>5.5</b>  | <b>6.2</b>  | <b>2.0</b>                             |
| <b>All end-use sectors</b>        |             |             |             |             |             |             |             |  |
| Liquids                           | 6.1         | 6.2         | 6.4         | 6.8         | 7.1         | 7.5         | 8.1         | 0.9                                    |
| Natural gas                       | 3.3         | 3.2         | 3.4         | 3.9         | 4.3         | 4.8         | 5.2         | 1.8                                    |
| Coal                              | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.2         | 0.3         | 1.3                                    |
| Electricity                       | 1.5         | 1.5         | 1.7         | 1.9         | 2.0         | 2.2         | 2.4         | 1.6                                    |
| Renewables                        | 0.6         | 0.6         | 0.5         | 0.5         | 0.6         | 0.6         | 0.6         | 0.0                                    |
| Delivered energy                  | <b>11.7</b> | <b>11.7</b> | <b>12.2</b> | <b>13.3</b> | <b>14.2</b> | <b>15.3</b> | <b>16.6</b> | <b>1.3</b>                             |
| Electricity-related losses        | 4.0         | 4.1         | 5.0         | 5.3         | 5.6         | 6.0         | 6.4         | 1.6                                    |
| <b>Total</b>                      | <b>15.7</b> | <b>15.8</b> | <b>17.2</b> | <b>18.6</b> | <b>19.8</b> | <b>21.2</b> | <b>23.0</b> | <b>1.4</b>                             |
| <b>Electric power<sup>a</sup></b> |             |             |             |             |             |             |             |  |
| Liquids                           | 1.0         | 1.1         | 1.1         | 1.1         | 1.0         | 1.0         | 0.9         | -0.6                                   |
| Natural gas                       | 1.1         | 1.2         | 1.4         | 1.5         | 1.7         | 1.9         | 2.1         | 2.0                                    |
| Coal                              | 0.1         | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.2         | 1.2                                    |
| Nuclear                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.3         | 0.3         | 5.8                                    |
| Renewables                        | 2.9         | 2.8         | 3.0         | 3.4         | 3.6         | 3.9         | 4.3         | 1.4                                    |
| <b>Total</b>                      | <b>5.3</b>  | <b>5.3</b>  | <b>5.7</b>  | <b>6.2</b>  | <b>6.6</b>  | <b>7.2</b>  | <b>7.7</b>  | <b>1.4</b>                             |
| <b>Unspecified sector</b>         | <b>0.3</b>  | <b>0.3</b>  | <b>1.0</b>  | <b>1.0</b>  | <b>1.0</b>  | <b>1.0</b>  | <b>1.1</b>  | <b>—</b>                               |
| <b>Total energy consumption</b>   |             |             |             |             |             |             |             |  |
| Liquids                           | 7.4         | 7.7         | 8.5         | 8.8         | 9.1         | 9.5         | 10.1        | 1.0                                    |
| Natural gas                       | 4.4         | 4.3         | 4.8         | 5.4         | 6.0         | 6.6         | 7.3         | 1.9                                    |
| Coal                              | 0.3         | 0.3         | 0.3         | 0.3         | 0.4         | 0.4         | 0.4         | 1.3                                    |
| Nuclear                           | 0.1         | 0.1         | 0.1         | 0.1         | 0.2         | 0.3         | 0.3         | 5.8                                    |
| Renewables                        | 3.5         | 3.4         | 3.5         | 3.9         | 4.2         | 4.5         | 4.9         | 1.2                                    |
| <b>Total</b>                      | <b>15.7</b> | <b>15.8</b> | <b>17.2</b> | <b>18.6</b> | <b>19.8</b> | <b>21.2</b> | <b>23.0</b> | <b>1.4</b>                             |

<sup>a</sup>Fuel inputs used in the production of electricity and heat, excluding captive generators.

Sources: **History:** Derived from U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies); and International Energy Agency, "Balances of OECD and Non-OECD Statistics" (2014), [www.iea.org](http://www.iea.org) (subscription site). **Projections:** EIA, World Energy Projection System Plus (2015), run reference\_final\_2016.02.19\_115008.