

**Appendix D**

# **High Oil Price case projections**

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**Table D1. World total primary energy consumption by region, High Oil Price case, 2011–40**  
(quadrillion Btu)

| Region                      | History      |              | Projections  |              |              |              |              | Average annual percent change, 2012–40 |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--|
|                             | 2011         | 2012         | 2020         | 2025         | 2030         | 2035         | 2040         |  |
| <b>OECD</b>                 |              |              |              |              |              |              |              |  |
| OECD Americas               | <b>120.6</b> | <b>118.1</b> | <b>125.3</b> | <b>127.9</b> | <b>130.8</b> | <b>135.5</b> | <b>142.1</b> | <b>0.7</b>                             |
| United States <sup>a</sup>  | 96.8         | 94.4         | 100.8        | 102.2        | 103.3        | 105.7        | 109.7        | 0.5                                    |
| Canada                      | 14.5         | 14.5         | 15.0         | 15.5         | 16.2         | 17.1         | 18.2         | 0.8                                    |
| Mexico and Chile            | 9.3          | 9.2          | 9.5          | 10.2         | 11.4         | 12.7         | 14.3         | 1.6                                    |
| OECD Europe                 | <b>82.0</b>  | <b>81.4</b>  | <b>83.6</b>  | <b>86.3</b>  | <b>89.3</b>  | <b>92.5</b>  | <b>95.8</b>  | <b>0.6</b>                             |
| OECD Asia                   | <b>39.4</b>  | <b>39.0</b>  | <b>42.3</b>  | <b>44.1</b>  | <b>45.5</b>  | <b>47.0</b>  | <b>48.5</b>  | <b>0.8</b>                             |
| Japan                       | 21.2         | 20.8         | 21.3         | 21.9         | 21.9         | 22.0         | 21.5         | 0.1                                    |
| South Korea                 | 11.3         | 11.4         | 13.5         | 14.3         | 15.1         | 15.9         | 16.8         | 1.4                                    |
| Australia and New Zealand   | 6.9          | 6.8          | 7.5          | 8.0          | 8.4          | 9.1          | 10.1         | 1.4                                    |
| <b>Total OECD</b>           | <b>242.0</b> | <b>238.4</b> | <b>251.2</b> | <b>258.4</b> | <b>265.6</b> | <b>275.0</b> | <b>286.4</b> | <b>0.7</b>                             |
| <b>Non-OECD</b>             |              |              |              |              |              |              |              |  |
| Non-OECD Europe and Eurasia | <b>49.9</b>  | <b>50.7</b>  | <b>51.2</b>  | <b>54.4</b>  | <b>56.2</b>  | <b>58.0</b>  | <b>58.1</b>  | <b>0.5</b>                             |
| Russia                      | 30.9         | 32.1         | 32.7         | 34.5         | 35.1         | 35.7         | 34.9         | 0.3                                    |
| Other                       | 19.0         | 18.6         | 18.5         | 19.9         | 21.2         | 22.3         | 23.2         | 0.8                                    |
| Non-OECD Asia               | <b>168.2</b> | <b>175.9</b> | <b>220.3</b> | <b>247.8</b> | <b>275.8</b> | <b>307.1</b> | <b>340.8</b> | <b>2.4</b>                             |
| China                       | 109.4        | 115.0        | 146.5        | 161.6        | 175.8        | 190.0        | 203.3        | 2.1                                    |
| India                       | 25.0         | 26.2         | 32.1         | 38.2         | 45.1         | 53.6         | 63.7         | 3.2                                    |
| Other                       | 33.7         | 34.7         | 41.6         | 48.0         | 54.9         | 63.5         | 73.7         | 2.7                                    |
| Middle East                 | <b>29.9</b>  | <b>31.7</b>  | <b>40.5</b>  | <b>46.1</b>  | <b>52.6</b>  | <b>59.9</b>  | <b>66.9</b>  | <b>2.7</b>                             |
| Africa                      | <b>20.1</b>  | <b>21.5</b>  | <b>25.3</b>  | <b>29.6</b>  | <b>33.8</b>  | <b>38.9</b>  | <b>45.0</b>  | <b>2.7</b>                             |
| Non-OECD Americas           | <b>30.5</b>  | <b>31.0</b>  | <b>32.6</b>  | <b>36.4</b>  | <b>40.1</b>  | <b>44.4</b>  | <b>49.3</b>  | <b>1.7</b>                             |
| Brazil                      | 14.8         | 15.2         | 15.8         | 18.0         | 20.2         | 22.7         | 25.4         | 1.8                                    |
| Other                       | 15.7         | 15.8         | 16.8         | 18.4         | 19.9         | 21.7         | 23.9         | 1.5                                    |
| <b>Total Non-OECD</b>       | <b>298.6</b> | <b>310.8</b> | <b>369.8</b> | <b>414.3</b> | <b>458.5</b> | <b>508.1</b> | <b>560.1</b> | <b>2.1</b>                             |
| <b>Total World</b>          | <b>540.5</b> | <b>549.3</b> | <b>621.0</b> | <b>672.7</b> | <b>724.1</b> | <b>783.1</b> | <b>846.5</b> | <b>1.6</b>                             |

<sup>a</sup>Includes the 50 States and the District of Columbia.

Notes: Energy totals include net imports of coal coke and electricity generated from biomass in the United States. Totals may not equal sum of components due to independent rounding. The electricity portion of the national fuel consumption values consists of generation for domestic use plus an adjustment for electricity trade based on a fuel's share of total generation in the exporting country.

Sources: **History:** 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, *Annual Energy Outlook 2015*, DOE/EIA-0383(2015) (Washington, DC: April 2015); AEO2015 National Energy Modeling System, run HIGHPRICE.D021915A, [www.eia.gov/aeo](http://www.eia.gov/aeo); and World Energy Projection System Plus (2016), run IEO2016-oil\_price\_high\_2016.02.19\_115017.

**Table D2. World gross domestic product (GDP) by region expressed in purchasing power parity, High Oil Price case, 2011–40**  
(billion 2010 dollars)

| Region                      | History       |               | Projections    |                |                |                |                | Average annual percent change, 2012–40 |
|-----------------------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|--|
|                             | 2011          | 2012          | 2020           | 2025           | 2030           | 2035           | 2040           |  |
| <b>OECD</b>                 |               |               |                |                |                |                |                |  |
| OECD Americas               | <b>18,616</b> | <b>19,080</b> | <b>23,389</b>  | <b>26,786</b>  | <b>29,906</b>  | <b>33,492</b>  | <b>37,662</b>  | <b>2.5</b>                             |
| United States <sup>a</sup>  | 15,021        | 15,369        | 18,798         | 21,497         | 23,844         | 26,561         | 29,760         | 2.4                                    |
| Canada                      | 1,396         | 1,422         | 1,700          | 1,882          | 2,076          | 2,295          | 2,536          | 2.1                                    |
| Mexico and Chile            | 2,200         | 2,288         | 2,891          | 3,406          | 3,986          | 4,636          | 5,365          | 3.1                                    |
| OECD Europe                 | <b>18,670</b> | <b>18,638</b> | <b>21,501</b>  | <b>23,641</b>  | <b>25,738</b>  | <b>27,885</b>  | <b>30,194</b>  | <b>1.7</b>                             |
| OECD Asia                   | <b>6,904</b>  | <b>7,051</b>  | <b>8,031</b>   | <b>8,576</b>   | <b>9,093</b>   | <b>9,655</b>   | <b>10,218</b>  | <b>1.3</b>                             |
| Japan                       | 4,299         | 4,373         | 4,693          | 4,883          | 5,018          | 5,132          | 5,163          | 0.6                                    |
| South Korea                 | 1,528         | 1,563         | 1,959          | 2,137          | 2,333          | 2,547          | 2,784          | 2.1                                    |
| Australia and New Zealand   | 1,077         | 1,115         | 1,379          | 1,555          | 1,742          | 1,976          | 2,271          | 2.6                                    |
| <b>Total OECD</b>           | <b>44,189</b> | <b>44,769</b> | <b>52,922</b>  | <b>59,002</b>  | <b>64,736</b>  | <b>71,032</b>  | <b>78,073</b>  | <b>2.0</b>                             |
| <b>Non-OECD</b>             |               |               |                |                |                |                |                |  |
| Non-OECD Europe and Eurasia | <b>5,380</b>  | <b>5,535</b>  | <b>6,636</b>   | <b>7,832</b>   | <b>9,144</b>   | <b>10,668</b>  | <b>12,228</b>  | <b>2.9</b>                             |
| Russia                      | 3,165         | 3,273         | 3,664          | 4,168          | 4,721          | 5,369          | 5,927          | 2.1                                    |
| Other                       | 2,215         | 2,262         | 2,972          | 3,664          | 4,423          | 5,298          | 6,301          | 3.7                                    |
| Non-OECD Asia               | <b>26,261</b> | <b>27,914</b> | <b>44,642</b>  | <b>57,714</b>  | <b>72,523</b>  | <b>89,841</b>  | <b>110,225</b> | <b>5.0</b>                             |
| China                       | 13,286        | 14,309        | 23,486         | 30,532         | 38,280         | 46,990         | 56,784         | 5.0                                    |
| India                       | 5,706         | 5,957         | 10,318         | 13,805         | 17,844         | 22,733         | 28,711         | 5.8                                    |
| Other                       | 7,268         | 7,648         | 10,838         | 13,378         | 16,399         | 20,118         | 24,730         | 4.3                                    |
| Middle East                 | <b>4,986</b>  | <b>5,072</b>  | <b>7,097</b>   | <b>8,915</b>   | <b>10,913</b>  | <b>13,128</b>  | <b>15,578</b>  | <b>4.1</b>                             |
| Africa                      | <b>4,355</b>  | <b>4,561</b>  | <b>6,610</b>   | <b>8,459</b>   | <b>10,859</b>  | <b>13,964</b>  | <b>17,922</b>  | <b>5.0</b>                             |
| Non-OECD Americas           | <b>6,427</b>  | <b>6,604</b>  | <b>8,069</b>   | <b>9,508</b>   | <b>10,975</b>  | <b>12,604</b>  | <b>14,495</b>  | <b>2.8</b>                             |
| Brazil                      | 2,916         | 2,968         | 3,462          | 4,063          | 4,683          | 5,359          | 6,123          | 2.6                                    |
| Other                       | 3,510         | 3,636         | 4,607          | 5,445          | 6,292          | 7,244          | 8,371          | 3.0                                    |
| <b>Total Non-OECD</b>       | <b>47,408</b> | <b>49,686</b> | <b>73,054</b>  | <b>92,428</b>  | <b>114,414</b> | <b>140,205</b> | <b>170,448</b> | <b>4.5</b>                             |
| <b>Total World</b>          | <b>91,598</b> | <b>94,455</b> | <b>125,976</b> | <b>151,430</b> | <b>179,151</b> | <b>211,237</b> | <b>248,521</b> | <b>3.5</b>                             |

<sup>a</sup>Includes the 50 States and the District of Columbia.

Note: Totals may not equal sum of components due to independent rounding.

Sources: Derived from Oxford Economic Model (June 2015), [www.oxfordeconomics.com](http://www.oxfordeconomics.com) (subscription site); and EIA, *Annual Energy Outlook 2015*, DOE/EIA-0383(2015) (Washington, DC: April 2015); AEO2015 National Energy Modeling System, run HIGHPRICE.D021915A, [www.eia.gov/aeo](http://www.eia.gov/aeo).

**Table D3. World liquids consumption by region, High Oil Price case, 2011–40**  
(million barrels per day)

| Region                      | History     |             | Projections |              |              |              |              | Average annual percent change, 2012–40 |
|-----------------------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--|
|                             | 2011        | 2012        | 2020        | 2025         | 2030         | 2035         | 2040         |  |
| <b>OECD</b>                 |             |             |             |              |              |              |              |  |
| OECD Americas               | <b>23.6</b> | <b>23.2</b> | <b>23.6</b> | <b>23.2</b>  | <b>22.9</b>  | <b>22.8</b>  | <b>23.1</b>  | <b>0.0</b>                             |
| United States <sup>a</sup>  | 18.9        | 18.5        | 19.0        | 18.6         | 18.0         | 17.7         | 17.7         | -0.2                                   |
| Canada                      | 2.3         | 2.4         | 2.3         | 2.3          | 2.4          | 2.5          | 2.6          | 0.3                                    |
| Mexico and Chile            | 2.4         | 2.4         | 2.3         | 2.3          | 2.4          | 2.6          | 2.8          | 0.6                                    |
| OECD Europe                 | <b>14.5</b> | <b>14.1</b> | <b>13.3</b> | <b>13.2</b>  | <b>13.4</b>  | <b>13.5</b>  | <b>13.6</b>  | <b>-0.1</b>                            |
| OECD Asia                   | <b>7.9</b>  | <b>8.2</b>  | <b>7.3</b>  | <b>7.2</b>   | <b>7.2</b>   | <b>7.3</b>   | <b>7.4</b>   | <b>-0.4</b>                            |
| Japan                       | 4.4         | 4.7         | 3.7         | 3.5          | 3.5          | 3.4          | 3.3          | -1.2                                   |
| South Korea                 | 2.3         | 2.3         | 2.2         | 2.3          | 2.3          | 2.4          | 2.5          | 0.2                                    |
| Australia and New Zealand   | 1.2         | 1.2         | 1.3         | 1.4          | 1.4          | 1.5          | 1.5          | 0.8                                    |
| <b>Total OECD</b>           | <b>46.0</b> | <b>45.5</b> | <b>44.1</b> | <b>43.7</b>  | <b>43.4</b>  | <b>43.6</b>  | <b>44.1</b>  | <b>-0.1</b>                            |
| <b>Non-OECD</b>             |             |             |             |              |              |              |              |  |
| Non-OECD Europe and Eurasia | <b>5.3</b>  | <b>5.3</b>  | <b>5.6</b>  | <b>6.0</b>   | <b>6.1</b>   | <b>6.1</b>   | <b>6.1</b>   | <b>0.5</b>                             |
| Russia                      | 3.4         | 3.4         | 3.5         | 3.7          | 3.7          | 3.7          | 3.6          | 0.1                                    |
| Other                       | 1.9         | 1.8         | 2.1         | 2.3          | 2.4          | 2.5          | 2.5          | 1.2                                    |
| Non-OECD Asia               | <b>20.5</b> | <b>21.5</b> | <b>25.8</b> | <b>28.6</b>  | <b>31.3</b>  | <b>34.6</b>  | <b>38.0</b>  | <b>2.1</b>                             |
| China                       | 9.5         | 10.2        | 12.4        | 13.8         | 14.9         | 16.2         | 17.1         | 1.9                                    |
| India                       | 3.5         | 3.6         | 4.3         | 4.9          | 5.6          | 6.4          | 7.4          | 2.6                                    |
| Other                       | 7.5         | 7.7         | 9.0         | 9.9          | 10.8         | 12.0         | 13.5         | 2.0                                    |
| Middle East                 | <b>7.4</b>  | <b>7.7</b>  | <b>9.8</b>  | <b>10.4</b>  | <b>11.5</b>  | <b>12.8</b>  | <b>14.1</b>  | <b>2.2</b>                             |
| Africa                      | <b>3.4</b>  | <b>3.6</b>  | <b>4.4</b>  | <b>4.9</b>   | <b>5.4</b>   | <b>6.1</b>   | <b>7.0</b>   | <b>2.4</b>                             |
| Non-OECD Americas           | <b>6.4</b>  | <b>6.7</b>  | <b>7.2</b>  | <b>7.7</b>   | <b>8.1</b>   | <b>8.6</b>   | <b>9.2</b>   | <b>1.2</b>                             |
| Brazil                      | 2.8         | 2.9         | 3.2         | 3.6          | 3.9          | 4.2          | 4.6          | 1.6                                    |
| Other                       | 3.6         | 3.8         | 4.0         | 4.1          | 4.2          | 4.4          | 4.6          | 0.8                                    |
| <b>Total Non-OECD</b>       | <b>43.1</b> | <b>44.8</b> | <b>52.8</b> | <b>57.6</b>  | <b>62.4</b>  | <b>68.2</b>  | <b>74.4</b>  | <b>1.8</b>                             |
| <b>Total World</b>          | <b>89.1</b> | <b>90.3</b> | <b>96.9</b> | <b>101.2</b> | <b>105.8</b> | <b>111.8</b> | <b>118.5</b> | <b>1.0</b>                             |

<sup>a</sup>Includes the 50 States and the District of Columbia.

Note: Totals may not equal sum of components due to independent rounding.

Sources: History: U.S. Energy Information Administration (EIA), International Energy Statistics database (as of May 2015), [www.eia.gov/ies](http://www.eia.gov/ies).

Projections: EIA, *Annual Energy Outlook 2015*, DOE/EIA-0383(2015) (Washington, DC: April 2015); AEO2015 National Energy Modeling System, run HIGHPRICE.D021915A, [www.eia.gov/aeo](http://www.eia.gov/aeo); and World Energy Projection System Plus (2016), run IEO2016-oil\_price\_high\_2016.02.19\_115017.