

**Table K1. Industrial sector energy consumption by region and sector, High Economic Growth case**

quadrillion British thermal units

Region and sector	2022	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2022–2050
<b>Americas</b>								
<b>United States</b>								
Energy-intensive manufacturing	17.5	17.8	19.1	20.0	20.8	21.6	22.3	0.9%
Non-energy-intensive manufacturing	2.9	3.0	3.2	3.5	3.8	4.2	4.5	1.7%
Nonmanufacturing	6.3	6.3	6.6	6.8	7.1	7.5	7.8	0.8%
Unclassified	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	--
<b>Total</b>	<b>26.6</b>	<b>27.0</b>	<b>28.8</b>	<b>30.2</b>	<b>31.6</b>	<b>33.1</b>	<b>34.5</b>	<b>0.9%</b>
<b>Canada</b>								
Energy-intensive manufacturing	2.1	2.2	2.7	3.1	3.6	4.0	4.5	2.8%
Non-energy-intensive manufacturing	1.5	1.6	1.7	1.9	2.2	2.4	2.6	1.9%
Nonmanufacturing	2.4	2.5	2.6	2.8	3.0	3.1	3.2	1.0%
<b>Total</b>	<b>6.0</b>	<b>6.2</b>	<b>7.0</b>	<b>7.8</b>	<b>8.7</b>	<b>9.5</b>	<b>10.3</b>	<b>2.0%</b>
<b>Mexico</b>								
Energy-intensive manufacturing	1.2	1.2	1.4	1.6	1.8	2.0	2.4	2.5%
Non-energy-intensive manufacturing	1.2	1.3	1.5	1.8	2.0	2.2	2.3	2.3%
Nonmanufacturing	0.6	0.8	0.9	0.9	1.0	1.0	1.0	1.7%
<b>Total</b>	<b>3.1</b>	<b>3.3</b>	<b>3.8</b>	<b>4.3</b>	<b>4.7</b>	<b>5.2</b>	<b>5.7</b>	<b>2.2%</b>
<b>Brazil</b>								
Energy-intensive manufacturing	3.6	3.7	4.1	4.5	4.8	5.1	5.3	1.4%
Non-energy-intensive manufacturing	1.7	1.8	2.1	2.5	2.9	3.1	3.4	2.5%
Nonmanufacturing	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.0%
<b>Total</b>	<b>6.1</b>	<b>6.3</b>	<b>7.2</b>	<b>8.0</b>	<b>8.7</b>	<b>9.2</b>	<b>9.7</b>	<b>1.7%</b>
<b>Other Americas</b>								
Energy-intensive manufacturing	2.3	2.4	2.7	3.0	3.4	3.8	4.2	2.2%
Non-energy-intensive manufacturing	2.2	2.4	2.9	3.5	4.1	4.7	5.5	3.2%
Nonmanufacturing	1.2	1.3	1.4	1.5	1.8	1.8	1.9	1.6%
<b>Total</b>	<b>5.7</b>	<b>6.0</b>	<b>6.9</b>	<b>8.0</b>	<b>9.2</b>	<b>10.3</b>	<b>11.6</b>	<b>2.6%</b>
<b>Europe and Eurasia</b>								
<b>Western Europe</b>								
Energy-intensive manufacturing	16.2	16.3	16.9	18.0	19.2	20.8	22.5	1.2%
Non-energy-intensive manufacturing	7.1	7.1	7.3	7.5	7.8	8.1	8.5	0.6%
Nonmanufacturing	2.9	3.0	3.1	3.2	3.4	3.5	3.6	0.8%
<b>Total</b>	<b>26.3</b>	<b>26.4</b>	<b>27.2</b>	<b>28.7</b>	<b>30.3</b>	<b>32.4</b>	<b>34.6</b>	<b>1.0%</b>
<b>Russia</b>								
Energy-intensive manufacturing	9.5	10.0	10.6	11.5	12.5	13.7	14.9	1.6%
Non-energy-intensive manufacturing	3.7	4.1	4.6	5.3	6.1	7.2	8.4	3.0%
Nonmanufacturing	2.5	2.0	2.1	2.2	2.3	2.4	2.5	0.0%
<b>Total</b>	<b>15.6</b>	<b>16.1</b>	<b>17.3</b>	<b>18.9</b>	<b>20.9</b>	<b>23.3</b>	<b>25.7</b>	<b>1.8%</b>
<b>Eastern Europe and Eurasia</b>								
Energy-intensive manufacturing	2.1	2.4	2.9	3.3	3.9	4.6	5.4	3.5%
Non-energy-intensive manufacturing	0.8	0.8	0.8	0.8	0.9	1.1	1.2	1.8%
Nonmanufacturing	0.8	0.8	1.1	1.2	1.5	1.7	2.0	3.3%
<b>Total</b>	<b>3.6</b>	<b>4.0</b>	<b>4.8</b>	<b>5.4</b>	<b>6.3</b>	<b>7.4</b>	<b>8.6</b>	<b>3.1%</b>
<b>Asia Pacific</b>								
<b>Japan</b>								
Energy-intensive manufacturing	4.6	4.7	4.6	4.4	4.3	4.2	4.2	-0.4%
Non-energy-intensive manufacturing	1.4	1.5	1.5	1.4	1.4	1.4	1.4	-0.2%
Nonmanufacturing	0.4	0.3	0.3	0.3	0.3	0.3	0.3	-0.2%
<b>Total</b>	<b>6.4</b>	<b>6.5</b>	<b>6.4</b>	<b>6.1</b>	<b>6.0</b>	<b>5.9</b>	<b>5.9</b>	<b>-0.3%</b>
<b>South Korea</b>								
Energy-intensive manufacturing	4.4	4.5	4.8	4.9	5.0	5.1	5.1	0.5%

Non-energy-intensive manufacturing	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.5%
Nonmanufacturing	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.2%
<b>Total</b>	<b>5.7</b>	<b>5.9</b>	<b>6.2</b>	<b>6.5</b>	<b>6.7</b>	<b>6.8</b>	<b>7.0</b>	<b>0.7%</b>
<b>Australia and New Zealand</b>								
Energy-intensive manufacturing	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.5%
Non-energy-intensive manufacturing	0.5	0.6	0.6	0.7	0.8	0.8	0.9	1.8%
Nonmanufacturing	1.0	1.0	1.1	1.2	1.4	1.4	1.5	1.5%
<b>Total</b>	<b>2.6</b>	<b>2.7</b>	<b>3.0</b>	<b>3.3</b>	<b>3.6</b>	<b>3.9</b>	<b>4.1</b>	<b>1.6%</b>
<b>China</b>								
Energy-intensive manufacturing	56.5	59.0	60.0	60.1	59.6	59.5	58.8	0.1%
Non-energy-intensive manufacturing	22.4	24.6	27.2	29.8	31.6	33.2	33.9	1.5%
Nonmanufacturing	5.8	5.9	6.2	6.5	6.9	7.3	7.7	1.0%
<b>Total</b>	<b>84.8</b>	<b>89.5</b>	<b>93.4</b>	<b>96.4</b>	<b>98.0</b>	<b>99.9</b>	<b>100.4</b>	<b>0.6%</b>
<b>India</b>								
Energy-intensive manufacturing	8.6	9.4	12.4	16.0	19.9	24.5	29.7	4.5%
Non-energy-intensive manufacturing	8.2	9.2	12.7	16.8	21.1	25.5	30.3	4.8%
Nonmanufacturing	1.8	2.0	2.5	2.9	3.3	3.7	4.1	3.0%
<b>Total</b>	<b>18.6</b>	<b>20.6</b>	<b>27.6</b>	<b>35.8</b>	<b>44.3</b>	<b>53.7</b>	<b>64.1</b>	<b>4.5%</b>
<b>Other Asia Pacific</b>								
Energy-intensive manufacturing	7.2	8.0	9.8	11.3	13.0	14.7	16.6	3.1%
Non-energy-intensive manufacturing	8.6	9.7	12.0	14.5	16.9	19.3	21.6	3.3%
Nonmanufacturing	1.8	1.8	1.9	2.1	2.3	2.5	2.7	1.5%
<b>Total</b>	<b>17.6</b>	<b>19.5</b>	<b>23.8</b>	<b>28.0</b>	<b>32.2</b>	<b>36.6</b>	<b>40.9</b>	<b>3.1%</b>
<b>Africa and Middle East</b>								
<b>Africa</b>								
Energy-intensive manufacturing	3.2	3.5	4.0	4.6	5.4	6.2	7.3	3.0%
Non-energy-intensive manufacturing	5.7	6.3	7.9	9.6	11.6	13.8	16.1	3.8%
Nonmanufacturing	1.4	1.4	1.6	1.7	1.8	2.2	2.7	2.3%
<b>Total</b>	<b>10.3</b>	<b>11.2</b>	<b>13.4</b>	<b>15.9</b>	<b>18.8</b>	<b>22.2</b>	<b>26.0</b>	<b>3.4%</b>
<b>Middle East</b>								
Energy-intensive manufacturing	7.4	7.6	8.0	8.6	9.2	9.6	10.0	1.1%
Non-energy-intensive manufacturing	7.9	7.9	8.2	9.0	9.8	10.3	10.8	1.1%
Nonmanufacturing	2.7	3.2	3.7	3.8	4.5	5.9	8.0	4.0%
<b>Total</b>	<b>18.1</b>	<b>18.7</b>	<b>19.9</b>	<b>21.4</b>	<b>23.4</b>	<b>25.8</b>	<b>28.8</b>	<b>1.7%</b>
<b>World</b>								
Energy-intensive manufacturing	147.5	153.9	165.2	176.3	187.7	201.0	214.8	1.4%
Non-energy-intensive manufacturing	77.0	83.0	95.8	110.0	124.3	138.7	152.9	2.5%
Nonmanufacturing	32.6	33.1	36.0	38.4	41.7	45.6	50.4	1.6%
Unclassified	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	--
<b>Total</b>	<b>257.0</b>	<b>270.0</b>	<b>296.9</b>	<b>324.6</b>	<b>353.6</b>	<b>385.2</b>	<b>418.0</b>	<b>1.8%</b>

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hm\_230821.151836 and Annual Energy Outlook 2023 (March 2023), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Note: Totals may not equal sum of components due to independent rounding. Nonmanufacturing includes agriculture, construction, and mining; energy-intensive manufacturing includes food, pulp and paper, basic chemicals, refining, iron and steel, nonferrous metals, and nonmetallic minerals; non-energy-intensive manufacturing includes all other manufacturing industries.