

**Table F1. Total world delivered energy consumption by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	9.6	8.9	9.2	9.4	9.6	9.7	9.9	0.1
Natural gas	24.3	24.9	26.0	26.8	27.8	28.5	29.4	0.6
Coal	5.4	5.1	4.9	4.7	4.6	4.5	4.4	-0.7
Electricity	22.6	25.9	29.5	33.6	38.3	43.8	49.2	2.6
Renewables	1.5	1.5	1.6	1.6	1.6	1.6	1.7	0.4
<b>Total</b>	<b>63.5</b>	<b>66.3</b>	<b>71.1</b>	<b>76.1</b>	<b>82.0</b>	<b>88.1</b>	<b>94.7</b>	<b>1.3</b>
<b>Commercial</b>								
Liquid fuels	3.9	3.6	3.7	3.8	3.9	3.9	4.0	0.1
Natural gas	10.1	10.7	11.1	11.4	11.8	12.1	12.4	0.7
Coal	1.7	1.7	1.7	1.7	1.7	1.8	1.8	0.2
Electricity	17.2	19.8	21.9	24.1	26.6	29.4	32.1	2.1
Renewables	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
<b>Total</b>	<b>33.1</b>	<b>36.1</b>	<b>38.6</b>	<b>41.3</b>	<b>44.3</b>	<b>47.4</b>	<b>50.5</b>	<b>1.4</b>
<b>Industrial</b>								
Liquid fuels	61.8	73.6	83.3	93.3	103.2	113.2	123.3	2.3
Natural gas	58.2	69.4	77.3	85.4	94.7	103.7	112.6	2.2
Coal	64.4	72.0	77.9	84.5	91.6	99.5	108.1	1.7
Electricity	36.1	43.3	47.4	52.2	57.3	62.4	67.3	2.1
Renewables	20.7	25.5	29.5	33.8	38.4	43.3	48.5	2.9
<b>Total</b>	<b>241.0</b>	<b>283.9</b>	<b>315.5</b>	<b>349.2</b>	<b>385.2</b>	<b>422.1</b>	<b>459.8</b>	<b>2.2</b>
<b>Transportation</b>								
Liquid fuels	102.3	122.5	129.1	135.5	142.9	151.1	159.4	1.5
Natural gas	4.1	5.2	6.5	8.1	10.1	12.6	15.4	4.5
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	1.6	2.1	2.8	4.0	5.3	6.7	8.2	5.6
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>108.0</b>	<b>129.9</b>	<b>138.4</b>	<b>147.5</b>	<b>158.3</b>	<b>170.4</b>	<b>183.0</b>	<b>1.8</b>
<b>All end-use sectors</b>								
Liquid fuels	177.6	208.6	225.3	242.0	259.6	278.0	296.6	1.7
Natural gas	96.6	110.3	120.9	131.8	144.4	156.8	169.8	1.9
Coal	71.6	78.8	84.5	90.9	97.9	105.8	114.3	1.6
Electricity	77.4	91.1	101.6	113.8	127.6	142.2	156.8	2.4
Renewables	22.4	27.3	31.4	35.7	40.3	45.2	50.5	2.7
Delivered energy	445.6	516.1	563.6	614.1	669.8	728.0	788.0	1.9
Electricity-related losses	151.1	168.5	180.5	200.3	221.5	245.0	268.5	1.9
Discrepancy	4.9	4.8	6.3	7.8	9.2	10.8	12.2	3.1
<b>Total</b>	<b>601.6</b>	<b>689.4</b>	<b>750.4</b>	<b>822.2</b>	<b>900.5</b>	<b>983.8</b>	<b>1,068.7</b>	<b>1.9</b>
<b>Electric power</b>								
Liquid fuels	4.9	7.0	3.0	1.5	0.8	0.6	0.4	-7.8
Natural gas	51.9	54.1	59.2	57.1	58.7	60.3	63.1	0.7
Coal	87.1	91.0	86.9	91.8	93.5	96.1	101.5	0.5
Nuclear	26.8	30.0	31.0	32.4	32.9	32.0	32.2	0.6
Renewables	65.1	84.8	109.1	138.5	170.3	205.3	235.0	4.4
<b>Total</b>	<b>235.8</b>	<b>266.9</b>	<b>289.3</b>	<b>321.2</b>	<b>356.2</b>	<b>394.3</b>	<b>432.3</b>	<b>2.0</b>
<b>Total energy consumption</b>								
Liquid fuels	182.4	214.6	227.7	243.3	260.5	279.0	297.8	1.6
Natural gas	147.2	163.2	179.0	187.7	202.1	216.1	232.0	1.5
Coal	155.7	167.3	169.2	180.6	189.6	200.3	214.4	1.1

Nuclear	27.5	30.9	32.0	33.4	33.9	33.0	33.2	0.6
Renewables	88.7	113.5	142.6	177.1	214.3	255.3	291.2	4.0
<b>Total</b>	<b>601.6</b>	<b>689.4</b>	<b>750.4</b>	<b>822.2</b>	<b>900.5</b>	<b>983.8</b>	<b>1,068.7</b>	<b>1.9</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F2. Total OECD delivered energy consumption by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	3.4	2.8	2.8	2.7	2.6	2.5	2.4	-1.1
Natural gas	12.2	12.1	12.2	12.2	12.3	12.3	12.4	0.1
Coal	0.6	0.6	0.5	0.5	0.5	0.5	0.5	-0.9
Electricity	10.9	11.2	11.6	12.1	12.6	13.0	13.5	0.7
Renewables	0.6	0.6	0.6	0.6	0.6	0.6	0.5	-0.4
<b>Total</b>	<b>27.8</b>	<b>27.4</b>	<b>27.8</b>	<b>28.1</b>	<b>28.5</b>	<b>28.9</b>	<b>29.4</b>	<b>0.2</b>
<b>Commercial</b>								
Liquid fuels	2.2	2.0	2.0	2.0	2.0	2.0	1.9	-0.4
Natural gas	6.9	7.3	7.4	7.5	7.6	7.6	7.7	0.4
Coal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-1.1
Electricity	10.4	11.4	12.0	12.5	13.0	13.7	14.5	1.1
Renewables	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1
<b>Total</b>	<b>19.9</b>	<b>21.1</b>	<b>21.7</b>	<b>22.3</b>	<b>22.9</b>	<b>23.6</b>	<b>24.4</b>	<b>0.7</b>
<b>Industrial</b>								
Liquid fuels	25.7	29.0	31.1	33.2	35.2	37.3	39.7	1.5
Natural gas	23.5	26.8	28.6	30.7	33.3	36.0	39.0	1.7
Coal	7.2	8.2	8.4	8.8	9.3	9.8	10.3	1.2
Electricity	10.6	12.2	13.0	13.8	14.8	15.8	16.9	1.6
Renewables	6.4	7.0	7.4	7.7	8.1	8.6	9.2	1.3
<b>Total</b>	<b>73.4</b>	<b>83.3</b>	<b>88.4</b>	<b>94.2</b>	<b>100.7</b>	<b>107.5</b>	<b>115.1</b>	<b>1.5</b>
<b>Transportation</b>								
Liquid fuels	50.6	59.2	58.7	58.4	58.9	60.2	62.1	0.7
Natural gas	1.1	1.3	1.4	1.6	2.0	2.4	3.0	3.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.4	0.7	1.1	1.6	2.3	3.0	3.6	7.3
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>52.2</b>	<b>61.2</b>	<b>61.1</b>	<b>61.6</b>	<b>63.2</b>	<b>65.6</b>	<b>68.7</b>	<b>0.9</b>
<b>All end-use sectors</b>								
Liquid fuels	81.9	93.1	94.5	96.2	98.7	102.0	106.2	0.9
Natural gas	43.9	47.6	49.5	52.0	55.2	58.4	62.1	1.2
Coal	8.0	9.0	9.2	9.5	9.9	10.4	11.0	1.1
Electricity	32.4	35.5	37.6	40.1	42.7	45.5	48.5	1.4
Renewables	7.1	7.8	8.1	8.4	8.8	9.3	9.9	1.1
Delivered energy	173.3	193.1	199.0	206.3	215.3	225.7	237.7	1.1
Electricity-related losses	58.7	61.1	62.9	66.3	69.3	73.0	77.0	0.9
Discrepancy	1.0	-0.9	-0.6	-0.4	-0.4	-0.2	-0.1	0.0
<b>Total</b>	<b>232.9</b>	<b>253.3</b>	<b>261.2</b>	<b>272.1</b>	<b>284.1</b>	<b>298.5</b>	<b>314.5</b>	<b>1.0</b>
<b>Electric power</b>								
Liquid fuels	1.0	1.8	0.8	0.5	0.3	0.2	0.2	-5.0
Natural gas	23.9	23.7	24.2	24.0	24.9	25.4	26.4	0.3
Coal	18.5	16.4	15.4	15.3	14.5	14.0	13.4	-1.1
Nuclear	18.9	20.0	18.9	18.5	17.2	15.1	13.9	-1.0
Renewables	29.3	35.2	41.6	48.5	55.5	64.2	72.0	3.0
<b>Total</b>	<b>91.6</b>	<b>97.2</b>	<b>101.0</b>	<b>106.9</b>	<b>112.4</b>	<b>119.0</b>	<b>125.9</b>	<b>1.1</b>
<b>Total energy consumption</b>								
Liquid fuels	82.3	92.4	92.8	94.3	96.6	99.9	103.9	0.8
Natural gas	67.9	71.5	74.0	76.3	80.3	84.1	88.8	0.9
Coal	26.8	25.7	24.9	25.2	24.8	24.8	24.7	-0.3
Nuclear	19.3	20.5	19.4	19.0	17.7	15.5	14.2	-1.0
Renewables	36.7	43.2	50.1	57.4	64.8	74.3	82.9	2.8
<b>Total</b>	<b>232.9</b>	<b>253.3</b>	<b>261.2</b>	<b>272.1</b>	<b>284.1</b>	<b>298.5</b>	<b>314.5</b>	<b>1.0</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

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\* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.

\* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.

\* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F3. Delivered energy consumption in the United States by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.9	0.9	0.8	0.8	0.7	0.7	0.7	-0.8
Natural gas	5.0	5.0	5.0	4.9	4.9	5.0	5.0	0.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	5.1	5.2	5.3	5.5	5.8	6.0	6.3	0.7
Renewables	0.5	0.5	0.4	0.4	0.4	0.4	0.4	-0.9
<b>Total</b>	<b>11.4</b>	<b>11.5</b>	<b>11.6</b>	<b>11.7</b>	<b>11.9</b>	<b>12.1</b>	<b>12.3</b>	<b>0.3</b>
<b>Commercial</b>								
Liquid fuels	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.3
Natural gas	3.3	3.6	3.6	3.7	3.7	3.8	3.8	0.4
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.4
Electricity	4.3	4.7	4.8	4.9	5.1	5.4	5.8	0.9
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
<b>Total</b>	<b>8.6</b>	<b>9.4</b>	<b>9.5</b>	<b>9.6</b>	<b>9.9</b>	<b>10.2</b>	<b>10.6</b>	<b>0.7</b>
<b>Industrial</b>								
Liquid fuels	8.3	9.9	10.7	11.6	12.3	12.9	13.7	1.7
Natural gas	10.7	12.2	13.0	13.8	15.0	16.3	17.7	1.7
Coal	0.9	1.0	0.9	1.0	1.1	1.2	1.3	1.1
Electricity	3.1	3.5	3.8	4.1	4.4	4.7	5.0	1.6
Renewables	2.4	2.6	2.7	2.9	3.1	3.4	3.8	1.5
<b>Total</b>	<b>25.5</b>	<b>29.3</b>	<b>31.2</b>	<b>33.3</b>	<b>35.9</b>	<b>38.5</b>	<b>41.5</b>	<b>1.6</b>
<b>Transportation</b>								
Liquid fuels	24.0	27.1	27.0	27.0	27.5	28.3	29.4	0.7
Natural gas	0.8	0.8	0.8	0.9	1.0	1.1	1.3	1.6
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.0	0.1	0.1	0.2	0.2	0.3	0.5	8.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>24.8</b>	<b>28.0</b>	<b>27.9</b>	<b>28.0</b>	<b>28.7</b>	<b>29.8</b>	<b>31.1</b>	<b>0.8</b>
<b>All end-use sectors</b>								
Liquid fuels	34.0	38.8	39.4	40.2	41.4	42.8	44.6	0.9
Natural gas	19.8	21.7	22.4	23.3	24.7	26.1	27.7	1.1
Coal	1.0	1.0	0.9	1.0	1.1	1.2	1.3	1.1
Electricity	12.5	13.5	14.0	14.7	15.5	16.4	17.5	1.1
Renewables	3.0	3.2	3.3	3.4	3.6	3.9	4.3	1.2
Delivered energy	70.2	78.1	80.1	82.6	86.3	90.5	95.5	1.0
Electricity-related losses	23.3	23.5	23.3	23.8	24.6	25.5	26.6	0.4
Discrepancy	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.6	--
<b>Total</b>	<b>92.9</b>	<b>101.1</b>	<b>102.9</b>	<b>105.9</b>	<b>110.4</b>	<b>115.4</b>	<b>121.5</b>	<b>0.9</b>
<b>Electric power</b>								
Liquid fuels	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-3.0
Natural gas	12.0	11.1	10.9	11.2	12.1	12.9	13.8	0.4
Coal	8.1	7.2	7.0	6.7	6.4	6.2	6.1	-0.9
Nuclear	8.2	7.8	6.8	6.6	6.6	6.6	6.6	-0.7
Renewables	7.3	10.9	12.5	13.9	14.9	16.1	17.5	3.0
<b>Total</b>	<b>35.8</b>	<b>37.0</b>	<b>37.4</b>	<b>38.5</b>	<b>40.1</b>	<b>41.9</b>	<b>44.1</b>	<b>0.7</b>
<b>Total energy consumption</b>								
Liquid fuels	33.5	38.4	39.0	39.8	40.9	42.3	44.1	0.9
Natural gas	31.8	32.7	33.3	34.5	36.8	39.1	41.5	0.9
Coal	9.1	8.1	8.0	7.7	7.5	7.4	7.4	-0.7

Nuclear	8.2	7.8	6.8	6.6	6.6	6.6	6.6	-0.7
Renewables	10.3	14.1	15.8	17.4	18.5	20.0	21.8	2.5
<b>Total</b>	<b>92.9</b>	<b>101.1</b>	<b>102.9</b>	<b>105.9</b>	<b>110.4</b>	<b>115.4</b>	<b>121.5</b>	<b>0.9</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

- Notes:
- \* Totals may not equal sum of components due to independent rounding.
  - \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
  - \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
  - \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F4. Delivered energy consumption in Canada by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
								2020–2050
Residential								
Liquid fuels	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-1.3
Natural gas	0.8	0.7	0.7	0.7	0.7	0.7	0.7	-0.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.9
Electricity	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.5	1.4	1.5	1.5	1.5	1.5	1.5	0.1
Commercial								
Liquid fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.9
Natural gas	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.5	0.6	0.7	0.7	0.8	0.9	0.9	1.8
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	1.1	1.3	1.3	1.4	1.4	1.5	1.5	1.0
Industrial								
Liquid fuels	2.1	2.4	2.6	2.8	3.0	3.3	3.6	1.7
Natural gas	2.5	2.9	3.2	3.6	4.0	4.4	4.8	2.1
Coal	0.1	0.2	0.2	0.2	0.2	0.2	0.2	1.5
Electricity	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.9
Renewables	0.4	0.4	0.5	0.5	0.5	0.6	0.6	1.7
Total	5.8	6.6	7.2	7.9	8.7	9.5	10.2	1.9
Transportation								
Liquid fuels	2.4	2.7	2.6	2.6	2.5	2.5	2.6	0.2
Natural gas	0.1	0.2	0.2	0.2	0.3	0.3	0.4	3.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.1	0.1	0.1	13.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.6	2.8	2.9	2.9	2.9	3.0	3.1	0.6
All end-use sectors								
Liquid fuels	4.7	5.1	5.3	5.5	5.6	5.9	6.2	1.0
Natural gas	4.0	4.4	4.7	5.1	5.6	6.0	6.5	1.6
Coal	0.1	0.2	0.2	0.2	0.2	0.2	0.2	1.5
Electricity	1.8	2.0	2.2	2.3	2.5	2.7	2.9	1.5
Renewables	0.4	0.4	0.5	0.5	0.5	0.6	0.6	1.7
Delivered energy	11.0	12.1	12.8	13.6	14.5	15.4	16.4	1.3
Electricity-related losses	3.8	3.7	3.9	4.2	4.4	4.7	5.0	0.9
Discrepancy	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	--
Total	14.6	15.7	16.6	17.7	18.8	20.0	21.2	1.2
Electric power								
Liquid fuels	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-11.5
Natural gas	0.4	0.6	0.8	1.1	1.4	1.8	2.0	5.1
Coal	0.3	0.3	0.1	0.0	0.0	0.0	0.0	-100.0
Nuclear	1.0	0.8	0.8	0.8	0.5	0.4	0.3	-3.9
Renewables	3.9	4.0	4.4	4.7	5.0	5.3	5.6	1.2
Total	5.7	5.7	6.1	6.6	7.0	7.5	7.9	1.1
Total energy consumption								
Liquid fuels	4.3	4.8	4.9	5.1	5.2	5.5	5.8	1.0
Natural gas	4.5	5.0	5.6	6.2	7.1	7.8	8.5	2.2
Coal	0.5	0.5	0.3	0.2	0.2	0.2	0.2	-2.5

Nuclear	1.0	0.8	0.9	0.8	0.6	0.4	0.3	-3.9
Renewables	4.4	4.6	5.0	5.4	5.7	6.0	6.4	1.2
<b>Total</b>	<b>14.6</b>	<b>15.7</b>	<b>16.6</b>	<b>17.7</b>	<b>18.8</b>	<b>20.0</b>	<b>21.2</b>	<b>1.2</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F5. Delivered energy consumption in Mexico and Other OECD Americas by end-use sector and fuel, High Economic Growth**  
quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-1.3
Natural gas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.3
Electricity	0.4	0.5	0.5	0.6	0.7	0.7	0.8	2.1
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0.9</b>	<b>0.9</b>	<b>1.0</b>	<b>1.1</b>	<b>1.1</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.2	0.2	0.3	0.3	0.4	0.4	0.5	2.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.3</b>	<b>0.3</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>	<b>0.6</b>	<b>0.6</b>	<b>2.3</b>
<b>Industrial</b>								
Liquid fuels	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.3
Natural gas	1.5	1.9	2.2	2.6	3.0	3.4	3.7	3.0
Coal	0.2	0.3	0.3	0.3	0.4	0.4	0.5	2.7
Electricity	0.7	0.9	1.0	1.1	1.2	1.3	1.4	2.3
Renewables	0.4	0.5	0.6	0.6	0.7	0.8	0.9	2.9
<b>Total</b>	<b>4.0</b>	<b>4.9</b>	<b>5.5</b>	<b>6.3</b>	<b>7.2</b>	<b>8.0</b>	<b>8.8</b>	<b>2.6</b>
<b>Transportation</b>								
Liquid fuels	2.6	3.2	3.4	3.7	4.0	4.4	4.7	2.1
Natural gas	0.0	0.0	0.0	0.0	0.1	0.1	0.1	14.3
Coal	0.0	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	14.7
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.6</b>	<b>3.2</b>	<b>3.4</b>	<b>3.7</b>	<b>4.1</b>	<b>4.5</b>	<b>4.9</b>	<b>2.2</b>
<b>All end-use sectors</b>								
Liquid fuels	4.1	4.8	5.2	5.6	6.2	6.8	7.4	2.0
Natural gas	1.6	2.0	2.3	2.8	3.2	3.6	3.9	3.0
Coal	0.2	0.3	0.3	0.3	0.4	0.4	0.5	2.7
Electricity	1.3	1.6	1.8	2.0	2.2	2.4	2.7	2.4
Renewables	0.4	0.5	0.6	0.7	0.7	0.8	0.9	2.8
Delivered energy	7.7	9.2	10.1	11.4	12.7	14.0	15.4	2.3
Electricity-related losses	2.7	2.9	3.0	3.2	3.4	3.7	4.1	1.4
Discrepancy	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.9
<b>Total</b>	<b>10.6</b>	<b>12.2</b>	<b>13.4</b>	<b>14.8</b>	<b>16.3</b>	<b>18.0</b>	<b>19.7</b>	<b>2.1</b>
<b>Electric power</b>								
Liquid fuels	0.4	0.4	0.2	0.1	0.0	0.0	0.0	-10.6
Natural gas	1.7	2.1	2.3	2.4	2.4	2.2	2.1	0.7
Coal	0.5	0.3	0.3	0.3	0.3	0.3	0.3	-1.2
Nuclear	0.1	0.1	0.2	0.3	0.2	0.2	0.2	1.0
Renewables	1.4	1.5	1.8	2.1	2.6	3.5	4.2	3.7
<b>Total</b>	<b>4.0</b>	<b>4.4</b>	<b>4.8</b>	<b>5.2</b>	<b>5.6</b>	<b>6.2</b>	<b>6.8</b>	<b>1.7</b>
<b>Total energy consumption</b>								
Liquid fuels	4.6	5.3	5.4	5.7	6.2	6.8	7.4	1.6
Natural gas	3.4	4.2	4.7	5.3	5.7	5.9	6.1	2.0
Coal	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.5



Nuclear	0.1	0.1	0.2	0.3	0.3	0.2	0.2	1.0
Renewables	1.8	2.1	2.5	2.8	3.4	4.4	5.2	3.5
<b>Total</b>	<b>10.6</b>	<b>12.2</b>	<b>13.4</b>	<b>14.8</b>	<b>16.3</b>	<b>18.0</b>	<b>19.7</b>	<b>2.1</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

rowth case



**Table F6. Delivered energy consumption in OECD Europe by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	1.5	1.1	1.1	1.1	1.1	1.0	1.0	-1.3
Natural gas	5.4	5.3	5.4	5.4	5.5	5.5	5.6	0.1
Coal	0.6	0.6	0.5	0.5	0.5	0.5	0.4	-1.0
Electricity	3.3	3.4	3.5	3.7	3.7	3.8	3.9	0.6
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.8
<b>Total</b>	<b>10.9</b>	<b>10.5</b>	<b>10.7</b>	<b>10.8</b>	<b>10.9</b>	<b>11.0</b>	<b>11.1</b>	<b>0.1</b>
<b>Commercial</b>								
Liquid fuels	0.7	0.6	0.6	0.5	0.5	0.5	0.5	-1.0
Natural gas	2.3	2.4	2.4	2.4	2.5	2.5	2.5	0.2
Coal	0.2	0.2	0.2	0.2	0.1	0.1	0.1	-1.1
Electricity	3.3	3.6	3.9	4.1	4.3	4.5	4.7	1.2
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>6.5</b>	<b>6.8</b>	<b>7.0</b>	<b>7.3</b>	<b>7.4</b>	<b>7.7</b>	<b>7.9</b>	<b>0.6</b>
<b>Industrial</b>								
Liquid fuels	7.8	8.6	9.1	9.7	10.4	11.1	11.9	1.4
Natural gas	6.7	7.5	7.7	8.1	8.6	9.2	9.8	1.3
Coal	2.8	3.2	3.3	3.5	3.6	3.8	4.1	1.3
Electricity	4.0	4.6	4.8	5.1	5.4	5.7	6.1	1.4
Renewables	2.4	2.6	2.8	2.8	2.8	2.9	3.0	0.8
<b>Total</b>	<b>23.7</b>	<b>26.5</b>	<b>27.6</b>	<b>29.1</b>	<b>30.8</b>	<b>32.7</b>	<b>35.0</b>	<b>1.3</b>
<b>Transportation</b>								
Liquid fuels	15.2	18.8	18.4	18.0	17.8	18.0	18.3	0.6
Natural gas	0.1	0.2	0.3	0.3	0.5	0.6	0.9	6.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.3	0.4	0.7	1.1	1.7	2.2	2.6	8.2
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>15.6</b>	<b>19.4</b>	<b>19.3</b>	<b>19.5</b>	<b>19.9</b>	<b>20.8</b>	<b>21.8</b>	<b>1.1</b>
<b>All end-use sectors</b>								
Liquid fuels	25.2	29.2	29.2	29.3	29.8	30.6	31.7	0.8
Natural gas	14.6	15.4	15.8	16.3	17.0	17.8	18.8	0.8
Coal	3.6	3.9	4.0	4.1	4.3	4.4	4.6	0.9
Electricity	10.8	12.0	12.8	14.0	15.0	16.2	17.4	1.6
Renewables	2.5	2.8	2.9	2.9	3.0	3.1	3.2	0.8
Delivered energy	56.7	63.3	64.7	66.7	69.0	72.1	75.8	1.0
Electricity-related losses	19.5	20.2	21.4	23.3	24.8	26.6	28.5	1.3
Discrepancy	1.3	0.1	0.2	0.3	0.3	0.4	0.4	-3.6
<b>Total</b>	<b>77.6</b>	<b>83.6</b>	<b>86.3</b>	<b>90.3</b>	<b>94.2</b>	<b>99.1</b>	<b>104.7</b>	<b>1.0</b>
<b>Electric power</b>								
Liquid fuels	0.2	0.6	0.3	0.2	0.1	0.1	0.1	-2.3
Natural gas	5.0	5.5	5.7	5.4	5.4	5.4	5.5	0.3
Coal	4.5	3.7	3.1	2.9	2.4	2.5	2.5	-1.9
Nuclear	7.5	7.8	7.2	7.0	6.5	4.9	3.9	-2.2
Renewables	13.6	15.1	18.5	22.3	26.0	30.4	34.3	3.1
<b>Total</b>	<b>30.9</b>	<b>32.8</b>	<b>34.7</b>	<b>37.8</b>	<b>40.4</b>	<b>43.3</b>	<b>46.4</b>	<b>1.4</b>
<b>Total energy consumption</b>								
Liquid fuels	26.0	29.0	28.8	28.9	29.3	30.1	31.2	0.6
Natural gas	19.5	20.9	21.5	21.7	22.3	23.2	24.3	0.7
Coal	8.1	7.7	7.1	7.1	6.8	7.0	7.3	-0.3

Nuclear	7.9	8.1	7.5	7.3	6.7	5.1	4.0	-2.2
Renewables	16.1	17.8	21.4	25.3	29.1	33.7	37.8	2.9
<b>Total</b>	<b>77.6</b>	<b>83.6</b>	<b>86.3</b>	<b>90.3</b>	<b>94.2</b>	<b>99.1</b>	<b>104.7</b>	<b>1.0</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F7. Delivered energy consumption in Japan by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.5	0.4	0.4	0.4	0.4	0.4	0.4	-1.2
Natural gas	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-0.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	1.0	1.0	1.0	1.1	1.1	1.1	1.1	0.3
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>1.9</b>	<b>1.8</b>	<b>1.8</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>	<b>-0.1</b>
<b>Commercial</b>								
Liquid fuels	0.5	0.3	0.3	0.3	0.3	0.3	0.3	-1.2
Natural gas	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Electricity	1.2	1.3	1.3	1.3	1.3	1.4	1.4	0.4
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>2.2</b>	<b>2.2</b>	<b>0.1</b>
<b>Industrial</b>								
Liquid fuels	2.8	2.9	2.9	2.8	2.7	2.7	2.6	-0.3
Natural gas	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.2
Coal	1.8	2.1	2.1	2.2	2.2	2.2	2.2	0.7
Electricity	0.8	0.9	1.0	1.0	1.0	1.0	1.1	0.9
Renewables	0.5	0.5	0.5	0.5	0.4	0.4	0.4	-0.4
<b>Total</b>	<b>6.5</b>	<b>7.1</b>	<b>7.1</b>	<b>7.0</b>	<b>7.0</b>	<b>6.9</b>	<b>6.9</b>	<b>0.2</b>
<b>Transportation</b>								
Liquid fuels	2.8	3.3	3.1	2.9	2.8	2.7	2.7	-0.2
Natural gas	0.0	0.0	0.0	0.0	0.0	0.1	0.1	14.7
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.7
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.9</b>	<b>3.4</b>	<b>3.2</b>	<b>3.1</b>	<b>3.0</b>	<b>2.9</b>	<b>2.9</b>	<b>0.0</b>
<b>All end-use sectors</b>								
Liquid fuels	6.6	6.9	6.7	6.4	6.2	6.1	6.0	-0.3
Natural gas	1.4	1.5	1.5	1.5	1.5	1.5	1.6	0.4
Coal	1.8	2.1	2.1	2.2	2.2	2.2	2.2	0.7
Electricity	3.1	3.3	3.5	3.5	3.6	3.7	3.7	0.6
Renewables	0.5	0.5	0.5	0.5	0.5	0.4	0.4	-0.4
Delivered energy	13.4	14.4	14.3	14.1	13.9	13.9	13.9	0.1
Electricity-related losses	4.9	5.3	5.4	5.6	5.7	5.7	5.7	0.5
Discrepancy	0.0	-0.6	-0.5	-0.4	-0.4	-0.3	-0.3	0.0
<b>Total</b>	<b>18.3</b>	<b>19.1</b>	<b>19.2</b>	<b>19.3</b>	<b>19.2</b>	<b>19.2</b>	<b>19.4</b>	<b>0.2</b>
<b>Electric power</b>								
Liquid fuels	0.2	0.4	0.2	0.1	0.1	0.0	0.0	-7.1
Natural gas	2.9	2.5	2.5	2.2	2.0	1.9	1.8	-1.5
Coal	2.3	2.6	2.8	3.2	3.2	2.8	2.3	-0.1
Nuclear	0.6	1.2	1.4	1.4	1.3	1.1	1.1	2.0
Renewables	2.1	1.8	1.9	2.1	2.7	3.5	4.3	2.5
<b>Total</b>	<b>8.0</b>	<b>8.6</b>	<b>8.9</b>	<b>9.1</b>	<b>9.3</b>	<b>9.3</b>	<b>9.4</b>	<b>0.6</b>
<b>Total energy consumption</b>								
Liquid fuels	6.6	6.6	6.2	5.9	5.7	5.5	5.4	-0.7
Natural gas	4.4	4.1	4.1	3.7	3.5	3.4	3.4	-0.8
Coal	4.2	4.9	5.0	5.5	5.5	5.2	4.6	0.3

Nuclear	0.6	1.3	1.5	1.5	1.3	1.1	1.1	2.0
Renewables	2.5	2.3	2.4	2.6	3.2	4.0	4.8	2.1
<b>Total</b>	<b>18.3</b>	<b>19.1</b>	<b>19.2</b>	<b>19.3</b>	<b>19.2</b>	<b>19.2</b>	<b>19.4</b>	<b>0.2</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F8. Delivered energy consumption in South Korea by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-0.2
Natural gas	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6
Electricity	0.2	0.3	0.3	0.3	0.3	0.3	0.3	1.1
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
<b>Total</b>	<b>0.8</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.4</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.9
Natural gas	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
<b>Total</b>	<b>0.8</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.6</b>
<b>Industrial</b>								
Liquid fuels	2.7	3.1	3.4	3.6	3.7	3.9	4.1	1.4
Natural gas	0.4	0.5	0.5	0.5	0.6	0.6	0.7	1.7
Coal	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.6
Electricity	1.0	1.2	1.2	1.3	1.3	1.4	1.4	1.2
Renewables	0.1	0.1	0.2	0.2	0.2	0.2	0.2	1.0
<b>Total</b>	<b>5.4</b>	<b>6.1</b>	<b>6.6</b>	<b>7.0</b>	<b>7.4</b>	<b>7.8</b>	<b>8.2</b>	<b>1.4</b>
<b>Transportation</b>								
Liquid fuels	2.0	2.2	2.1	2.1	2.0	1.9	1.9	-0.3
Natural gas	0.0	0.1	0.1	0.1	0.1	0.1	0.2	4.7
Coal	0.0	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	2.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.1</b>	<b>2.3</b>	<b>2.2</b>	<b>2.2</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>0.0</b>
<b>All end-use sectors</b>								
Liquid fuels	5.0	5.5	5.7	5.8	5.9	6.1	6.2	0.7
Natural gas	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.1
Coal	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.6
Electricity	1.8	2.1	2.2	2.3	2.4	2.5	2.6	1.1
Renewables	0.1	0.2	0.2	0.2	0.2	0.2	0.2	1.0
Delivered energy	9.2	10.2	10.7	11.0	11.4	11.8	12.2	1.0
Electricity-related losses	2.8	3.6	3.7	3.9	4.0	4.2	4.3	1.5
Discrepancy	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.7
<b>Total</b>	<b>12.0</b>	<b>13.8</b>	<b>14.4</b>	<b>15.0</b>	<b>15.4</b>	<b>16.1</b>	<b>16.6</b>	<b>1.1</b>
<b>Electric power</b>								
Liquid fuels	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-12.0
Natural gas	1.3	1.3	1.5	1.4	1.3	1.0	1.0	-1.0
Coal	1.5	1.4	1.4	1.5	1.6	1.6	1.6	0.1
Nuclear	1.4	2.4	2.4	2.4	2.1	2.0	1.9	1.0
Renewables	0.2	0.3	0.5	0.9	1.5	2.1	2.4	7.9
<b>Total</b>	<b>4.6</b>	<b>5.6</b>	<b>5.9</b>	<b>6.2</b>	<b>6.3</b>	<b>6.6</b>	<b>6.8</b>	<b>1.3</b>
<b>Total energy consumption</b>								
Liquid fuels	4.9	5.4	5.5	5.6	5.7	5.9	6.0	0.6
Natural gas	2.4	2.5	2.8	2.7	2.6	2.4	2.5	0.1
Coal	2.7	2.8	2.9	3.1	3.3	3.4	3.5	0.8



Nuclear	1.5	2.5	2.5	2.5	2.1	2.0	2.0	1.0
Renewables	0.4	0.5	0.7	1.1	1.7	2.3	2.6	6.7
Total	12.0	13.8	14.4	15.0	15.4	16.1	16.6	1.1

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F9. Delivered energy consumption in Australia and New Zealand by end-use sector and fuel, High Economic Growth case**  
quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.2
Natural gas	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.3
Electricity	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>
<b>Commercial</b>								
Liquid fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.6
Natural gas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.2
Electricity	0.3	0.3	0.4	0.4	0.4	0.5	0.5	1.8
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.4</b>	<b>0.4</b>	<b>0.5</b>	<b>0.5</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>1.5</b>
<b>Industrial</b>								
Liquid fuels	0.7	0.8	0.9	1.0	1.2	1.3	1.5	2.4
Natural gas	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.5
Coal	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.8
Electricity	0.4	0.4	0.5	0.5	0.6	0.7	0.8	2.4
Renewables	0.2	0.2	0.2	0.2	0.3	0.3	0.3	1.2
<b>Total</b>	<b>2.6</b>	<b>2.8</b>	<b>3.1</b>	<b>3.5</b>	<b>3.8</b>	<b>4.1</b>	<b>4.5</b>	<b>1.9</b>
<b>Transportation</b>								
Liquid fuels	1.6	2.0	2.1	2.2	2.3	2.4	2.6	1.6
Natural gas	0.0	0.0	0.0	0.0	0.1	0.1	0.1	6.1
Coal	0.0	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	0.1	0.1	4.3
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>1.7</b>	<b>2.0</b>	<b>2.2</b>	<b>2.3</b>	<b>2.5</b>	<b>2.6</b>	<b>2.8</b>	<b>1.8</b>
<b>All end-use sectors</b>								
Liquid fuels	2.4	2.8	3.1	3.3	3.5	3.8	4.1	1.8
Natural gas	1.3	1.5	1.6	1.8	1.9	2.0	2.1	1.6
Coal	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.8
Electricity	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.9
Renewables	0.2	0.2	0.2	0.3	0.3	0.3	0.3	1.2
Delivered energy	5.1	5.8	6.3	6.8	7.4	7.9	8.5	1.7
Electricity-related losses	1.7	2.0	2.1	2.2	2.4	2.6	2.9	1.8
Discrepancy	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
<b>Total</b>	<b>6.9</b>	<b>7.8</b>	<b>8.4</b>	<b>9.1</b>	<b>9.9</b>	<b>10.7</b>	<b>11.5</b>	<b>1.7</b>
<b>Electric power</b>								
Liquid fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-5.1
Natural gas	0.5	0.5	0.5	0.4	0.3	0.2	0.2	-2.4
Coal	1.3	0.9	0.8	0.7	0.6	0.6	0.5	-2.8
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	0.8	1.5	2.0	2.4	2.9	3.3	3.7	5.1
<b>Total</b>	<b>2.6</b>	<b>3.0</b>	<b>3.2</b>	<b>3.5</b>	<b>3.8</b>	<b>4.2</b>	<b>4.5</b>	<b>1.8</b>
<b>Total energy consumption</b>								
Liquid fuels	2.4	2.8	3.0	3.2	3.5	3.7	4.1	1.8
Natural gas	1.9	2.0	2.1	2.2	2.2	2.3	2.4	0.9
Coal	1.6	1.1	1.0	1.0	0.9	0.9	0.8	-2.0

Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	1.1	1.8	2.3	2.8	3.3	3.8	4.2	4.6
<b>Total</b>	<b>6.9</b>	<b>7.8</b>	<b>8.4</b>	<b>9.1</b>	<b>9.9</b>	<b>10.7</b>	<b>11.5</b>	<b>1.7</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

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- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

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**Table F10. Total Non-OECD delivered energy consumption by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	6.3	6.1	6.4	6.7	7.0	7.2	7.5	0.6
Natural gas	12.1	12.8	13.8	14.6	15.5	16.1	17.0	1.2
Coal	4.8	4.5	4.3	4.2	4.1	4.0	3.9	-0.7
Electricity	11.7	14.6	17.8	21.4	25.8	30.7	35.7	3.8
Renewables	0.9	0.9	1.0	1.0	1.0	1.1	1.1	0.8
<b>Total</b>	<b>35.8</b>	<b>38.9</b>	<b>43.3</b>	<b>48.0</b>	<b>53.5</b>	<b>59.2</b>	<b>65.3</b>	<b>2.0</b>
<b>Commercial</b>								
Liquid fuels	1.7	1.6	1.7	1.8	1.9	2.0	2.1	0.6
Natural gas	3.1	3.4	3.7	4.0	4.2	4.4	4.6	1.3
Coal	1.5	1.5	1.5	1.5	1.6	1.6	1.7	0.3
Electricity	6.7	8.4	9.9	11.5	13.6	15.7	17.6	3.3
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
<b>Total</b>	<b>13.2</b>	<b>14.9</b>	<b>16.9</b>	<b>18.9</b>	<b>21.4</b>	<b>23.8</b>	<b>26.1</b>	<b>2.3</b>
<b>Industrial</b>								
Liquid fuels	36.0	44.6	52.2	60.2	68.0	75.9	83.6	2.8
Natural gas	34.6	42.6	48.8	54.7	61.3	67.7	73.6	2.5
Coal	57.2	63.8	69.5	75.7	82.3	89.7	97.8	1.8
Electricity	25.5	31.2	34.4	38.4	42.5	46.6	50.4	2.3
Renewables	14.3	18.4	22.1	26.2	30.3	34.7	39.3	3.4
<b>Total</b>	<b>167.6</b>	<b>200.5</b>	<b>227.1</b>	<b>255.1</b>	<b>284.5</b>	<b>314.6</b>	<b>344.7</b>	<b>2.4</b>
<b>Transportation</b>								
Liquid fuels	51.7	63.3	70.5	77.1	84.0	90.8	97.3	2.1
Natural gas	2.9	4.0	5.1	6.4	8.1	10.1	12.4	4.9
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	1.1	1.4	1.7	2.3	3.0	3.8	4.6	4.8
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>55.8</b>	<b>68.7</b>	<b>77.3</b>	<b>85.9</b>	<b>95.1</b>	<b>104.8</b>	<b>114.3</b>	<b>2.4</b>
<b>All end-use sectors</b>								
Liquid fuels	95.7	115.5	130.8	145.8	160.9	175.9	190.4	2.3
Natural gas	52.7	62.7	71.3	79.7	89.2	98.4	107.7	2.4
Coal	63.6	69.8	75.3	81.4	88.0	95.4	103.4	1.6
Electricity	45.1	55.6	63.9	73.6	84.9	96.7	108.4	3.0
Renewables	15.3	19.5	23.2	27.3	31.5	35.9	40.5	3.3
Delivered energy	272.3	323.0	364.6	407.9	454.5	502.3	550.3	2.4
Electricity-related losses	92.4	107.4	117.6	134.0	152.2	172.0	191.5	2.5
Discrepancy	3.9	5.6	7.0	8.2	9.6	11.0	12.3	3.9
<b>Total</b>	<b>368.6</b>	<b>436.1</b>	<b>489.2</b>	<b>550.1</b>	<b>616.4</b>	<b>685.3</b>	<b>754.2</b>	<b>2.4</b>
<b>Electric power</b>								
Liquid fuels	3.9	5.2	2.2	1.0	0.5	0.3	0.2	-9.1
Natural gas	28.0	30.4	34.9	33.1	33.8	34.9	36.7	0.9
Coal	68.6	74.6	71.5	76.5	79.0	82.1	88.1	0.8
Nuclear	7.9	9.9	12.1	13.9	15.6	16.9	18.3	2.8
Renewables	35.8	49.6	67.5	89.9	114.8	141.0	163.1	5.2
<b>Total</b>	<b>144.2</b>	<b>169.7</b>	<b>188.3</b>	<b>214.3</b>	<b>243.8</b>	<b>275.3</b>	<b>306.4</b>	<b>2.5</b>
<b>Total energy consumption</b>								
Liquid fuels	100.1	122.2	134.9	149.1	163.9	179.1	193.9	2.2
Natural gas	79.3	91.7	104.9	111.4	121.8	132.0	143.2	2.0
Coal	128.9	141.6	144.3	155.5	164.8	175.5	189.7	1.3

Nuclear	8.2	10.3	12.5	14.4	16.2	17.6	19.0	2.8
Renewables	52.1	70.3	92.5	119.7	149.6	181.0	208.4	4.7
<b>Total</b>	<b>368.6</b>	<b>436.1</b>	<b>489.2</b>	<b>550.1</b>	<b>616.4</b>	<b>685.3</b>	<b>754.2</b>	<b>2.4</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F11. Delivered energy consumption in Russia by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.1
Natural gas	4.8	5.0	5.3	5.5	5.8	6.0	6.3	0.9
Coal	0.5	0.4	0.4	0.4	0.3	0.3	0.3	-1.4
Electricity	0.6	0.6	0.7	0.8	0.9	1.0	1.0	2.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>6.5</b>	<b>6.7</b>	<b>7.1</b>	<b>7.4</b>	<b>7.7</b>	<b>8.0</b>	<b>8.4</b>	<b>0.8</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.4
Natural gas	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-0.1
Coal	0.2	0.2	0.1	0.1	0.1	0.1	0.1	-1.6
Electricity	0.5	0.6	0.6	0.7	0.7	0.8	0.9	1.7
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>1.6</b>	<b>1.6</b>	<b>1.6</b>	<b>1.6</b>	<b>1.7</b>	<b>1.7</b>	<b>1.8</b>	<b>0.5</b>
<b>Industrial</b>								
Liquid fuels	3.2	3.7	4.1	4.6	5.1	5.6	6.2	2.3
Natural gas	6.8	8.4	9.2	10.1	11.0	11.8	12.6	2.1
Coal	2.6	3.1	3.4	3.7	4.0	4.3	4.5	1.9
Electricity	1.8	2.2	2.4	2.6	2.7	2.9	3.1	1.8
Renewables	0.2	0.2	0.3	0.3	0.3	0.4	0.4	2.7
<b>Total</b>	<b>14.5</b>	<b>17.6</b>	<b>19.3</b>	<b>21.2</b>	<b>23.1</b>	<b>25.0</b>	<b>26.8</b>	<b>2.1</b>
<b>Transportation</b>								
Liquid fuels	3.0	3.2	3.3	3.4	3.4	3.5	3.5	0.6
Natural gas	1.5	1.7	2.0	2.1	2.3	2.6	2.8	2.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>4.7</b>	<b>5.2</b>	<b>5.5</b>	<b>5.8</b>	<b>6.0</b>	<b>6.3</b>	<b>6.6</b>	<b>1.1</b>
<b>All end-use sectors</b>								
Liquid fuels	6.9	7.7	8.2	8.7	9.3	9.9	10.5	1.4
Natural gas	13.8	15.8	17.1	18.4	19.8	21.2	22.5	1.6
Coal	3.3	3.7	3.9	4.2	4.5	4.7	5.0	1.4
Electricity	3.1	3.7	4.0	4.3	4.6	4.9	5.2	1.7
Renewables	0.2	0.2	0.3	0.3	0.3	0.4	0.4	2.7
Delivered energy	27.3	31.1	33.5	35.9	38.5	41.1	43.6	1.6
Electricity-related losses	6.3	5.1	5.5	6.1	6.5	6.9	7.2	0.5
Discrepancy	0.9	1.1	1.2	1.2	1.3	1.3	1.4	1.5
<b>Total</b>	<b>34.4</b>	<b>37.3</b>	<b>40.1</b>	<b>43.2</b>	<b>46.4</b>	<b>49.3</b>	<b>52.2</b>	<b>1.4</b>
<b>Electric power</b>								
Liquid fuels	0.0	0.1	0.0	0.0	0.0	0.1	0.1	2.7
Natural gas	5.9	4.9	5.5	5.4	5.5	5.5	5.3	-0.3
Coal	2.2	2.2	2.3	3.0	3.0	2.9	3.2	1.3
Nuclear	2.1	2.4	2.5	2.5	2.5	2.5	2.4	0.5
Renewables	1.8	1.7	1.8	2.2	2.7	3.4	4.0	2.8
<b>Total</b>	<b>11.9</b>	<b>11.3</b>	<b>12.0</b>	<b>13.0</b>	<b>13.7</b>	<b>14.4</b>	<b>15.0</b>	<b>0.8</b>
<b>Total energy consumption</b>								
Liquid fuels	7.2	8.2	8.6	9.2	9.8	10.5	11.1	1.4
Natural gas	18.0	19.0	20.8	22.0	23.6	24.9	26.1	1.2
Coal	5.1	5.6	5.9	6.9	7.3	7.4	8.0	1.5



Nuclear	2.1	2.5	2.6	2.6	2.6	2.6	2.5	0.5
Renewables	2.0	2.0	2.1	2.5	3.1	3.9	4.6	2.8
Total	34.4	37.3	40.1	43.2	46.4	49.3	52.2	1.4

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F12. Delivered energy consumption in Other Non-OECD Europe and Eurasia by end-use sector and fuel, High Economic Growth**  
quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.9
Natural gas	1.7	1.7	1.7	1.7	1.7	1.7	1.8	0.2
Coal	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Electricity	0.6	0.6	0.7	0.8	0.9	1.0	1.1	2.4
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>2.8</b>	<b>3.0</b>	<b>3.1</b>	<b>3.2</b>	<b>3.3</b>	<b>3.4</b>	<b>3.6</b>	<b>0.8</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.3
Natural gas	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.7
Coal	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.6
Electricity	0.3	0.4	0.5	0.5	0.6	0.7	0.8	2.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>1.4</b>	<b>1.6</b>	<b>1.7</b>	<b>1.9</b>	<b>2.1</b>	<b>2.2</b>	<b>2.4</b>	<b>1.9</b>
<b>Industrial</b>								
Liquid fuels	1.1	1.1	1.2	1.3	1.4	1.5	1.7	1.6
Natural gas	2.2	2.6	2.7	2.8	3.0	3.2	3.4	1.5
Coal	1.3	1.5	1.7	1.9	2.1	2.4	2.7	2.4
Electricity	0.9	1.0	1.1	1.2	1.3	1.4	1.6	1.9
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6
<b>Total</b>	<b>5.6</b>	<b>6.4</b>	<b>6.7</b>	<b>7.3</b>	<b>8.0</b>	<b>8.7</b>	<b>9.5</b>	<b>1.8</b>
<b>Transportation</b>								
Liquid fuels	2.3	2.6	2.8	3.0	3.2	3.5	3.7	1.6
Natural gas	0.2	0.3	0.3	0.3	0.4	0.5	0.6	3.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.6</b>	<b>3.0</b>	<b>3.1</b>	<b>3.4</b>	<b>3.7</b>	<b>4.0</b>	<b>4.3</b>	<b>1.7</b>
<b>All end-use sectors</b>								
Liquid fuels	3.6	4.0	4.3	4.6	5.0	5.4	5.7	1.5
Natural gas	5.0	5.5	5.8	6.1	6.4	6.8	7.2	1.2
Coal	1.8	2.1	2.2	2.4	2.7	3.0	3.3	2.0
Electricity	1.8	2.2	2.3	2.6	2.9	3.2	3.6	2.2
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6
Delivered energy	12.4	13.9	14.7	15.8	17.1	18.4	19.9	1.6
Electricity-related losses	5.2	4.5	4.7	5.1	5.5	6.0	6.5	0.7
Discrepancy	0.5	0.6	0.7	0.7	0.8	0.8	0.9	1.6
<b>Total</b>	<b>18.2</b>	<b>19.0</b>	<b>20.1</b>	<b>21.7</b>	<b>23.4</b>	<b>25.3</b>	<b>27.3</b>	<b>1.4</b>
<b>Electric power</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Natural gas	2.3	2.2	2.3	2.2	2.1	2.1	2.2	-0.1
Coal	2.7	2.0	1.9	2.0	2.2	2.3	2.5	-0.2
Nuclear	1.3	1.3	1.5	1.5	1.5	1.5	1.7	0.9
Renewables	1.3	1.5	1.8	2.3	3.0	3.6	4.1	3.8
<b>Total</b>	<b>7.6</b>	<b>7.2</b>	<b>7.6</b>	<b>8.2</b>	<b>8.9</b>	<b>9.7</b>	<b>10.6</b>	<b>1.1</b>
<b>Total energy consumption</b>								
Liquid fuels	3.9	4.4	4.6	5.0	5.4	5.8	6.1	1.5
Natural gas	7.0	7.5	7.8	8.2	8.3	8.8	9.3	1.0
Coal	4.5	4.1	4.1	4.4	4.8	5.3	5.7	0.8

Nuclear	1.3	1.4	1.5	1.6	1.6	1.6	1.7	0.9
Renewables	1.5	1.7	2.0	2.5	3.3	3.9	4.4	3.7
<b>Total</b>	<b>18.2</b>	<b>19.0</b>	<b>20.1</b>	<b>21.7</b>	<b>23.4</b>	<b>25.3</b>	<b>27.3</b>	<b>1.4</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

c Growth case



**Table F13. Delivered energy consumption in China by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	2.0	2.0	2.1	2.2	2.4	2.4	2.6	0.9
Natural gas	2.4	2.7	3.1	3.4	3.7	3.8	4.1	1.8
Coal	3.5	3.2	3.1	3.0	2.8	2.7	2.7	-0.9
Electricity	4.0	5.2	6.4	7.6	9.1	10.9	12.3	3.8
Renewables	0.8	0.9	0.9	0.9	1.0	1.0	1.1	0.8
<b>Total</b>	<b>12.7</b>	<b>14.0</b>	<b>15.6</b>	<b>17.1</b>	<b>19.0</b>	<b>20.9</b>	<b>22.7</b>	<b>1.9</b>
<b>Commercial</b>								
Liquid fuels	0.8	0.7	0.8	0.8	0.9	0.9	0.9	0.5
Natural gas	0.7	0.8	0.9	1.0	1.1	1.1	1.2	1.7
Coal	0.9	0.9	0.8	0.8	0.8	0.8	0.7	-0.7
Electricity	1.7	2.3	2.8	3.2	3.9	4.6	5.0	3.6
Renewables	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
<b>Total</b>	<b>4.3</b>	<b>4.8</b>	<b>5.4</b>	<b>6.0</b>	<b>6.7</b>	<b>7.5</b>	<b>8.0</b>	<b>2.1</b>
<b>Industrial</b>								
Liquid fuels	12.0	14.7	16.6	18.3	19.6	20.8	21.8	2.0
Natural gas	5.6	6.7	7.4	7.9	8.4	9.0	9.6	1.8
Coal	41.0	42.5	42.9	43.4	43.8	44.7	45.6	0.4
Electricity	15.9	18.8	19.9	21.4	22.9	24.2	25.2	1.6
Renewables	2.6	3.3	3.5	3.6	3.7	3.7	3.7	1.2
<b>Total</b>	<b>77.1</b>	<b>85.9</b>	<b>90.3</b>	<b>94.5</b>	<b>98.4</b>	<b>102.3</b>	<b>105.9</b>	<b>1.1</b>
<b>Transportation</b>								
Liquid fuels	14.2	16.8	17.8	17.7	17.1	16.5	16.0	0.4
Natural gas	0.7	1.1	1.6	2.2	2.9	3.8	4.4	6.6
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.7	0.9	1.1	1.5	2.0	2.3	2.6	4.6
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>15.5</b>	<b>18.7</b>	<b>20.5</b>	<b>21.4</b>	<b>22.0</b>	<b>22.6</b>	<b>23.0</b>	<b>1.3</b>
<b>All end-use sectors</b>								
Liquid fuels	28.9	34.1	37.2	39.0	40.0	40.7	41.2	1.2
Natural gas	9.4	11.3	13.1	14.5	16.2	17.7	19.3	2.4
Coal	45.5	46.5	46.9	47.1	47.5	48.2	49.0	0.2
Electricity	22.3	27.1	30.2	33.7	37.8	42.0	45.2	2.4
Renewables	3.5	4.3	4.5	4.7	4.8	4.8	4.9	1.1
Delivered energy	109.6	123.4	131.9	139.1	146.2	153.3	159.6	1.3
Electricity-related losses	47.0	52.4	55.2	62.4	69.8	77.4	83.4	1.9
Discrepancy	-0.2	0.5	0.8	1.1	1.4	1.7	1.9	--
<b>Total</b>	<b>156.4</b>	<b>176.3</b>	<b>188.0</b>	<b>202.6</b>	<b>217.5</b>	<b>232.5</b>	<b>245.0</b>	<b>1.5</b>
<b>Electric power</b>								
Liquid fuels	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-7.6
Natural gas	2.5	5.2	8.8	7.7	8.7	9.9	11.1	5.0
Coal	48.8	48.8	42.7	43.3	42.2	42.1	42.1	-0.5
Nuclear	3.3	4.4	5.7	7.1	8.3	9.5	10.5	3.9
Renewables	18.2	24.7	32.0	41.8	52.1	61.6	68.5	4.5
<b>Total</b>	<b>72.9</b>	<b>83.2</b>	<b>89.1</b>	<b>99.8</b>	<b>111.3</b>	<b>123.0</b>	<b>132.2</b>	<b>2.0</b>
<b>Total energy consumption</b>								
Liquid fuels	28.6	34.4	37.4	39.2	40.2	40.9	41.5	1.3
Natural gas	11.5	16.1	21.4	21.8	24.5	27.3	30.1	3.3
Coal	90.7	92.0	86.2	87.0	86.3	86.8	87.6	-0.1

Nuclear	3.5	4.6	5.9	7.4	8.7	9.9	10.9	3.9
Renewables	22.1	29.3	37.0	47.2	57.9	67.7	74.8	4.1
<b>Total</b>	<b>156.4</b>	<b>176.3</b>	<b>188.0</b>	<b>202.6</b>	<b>217.5</b>	<b>232.5</b>	<b>245.0</b>	<b>1.5</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F14. Delivered energy consumption in India by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.1
Natural gas	0.0	0.1	0.1	0.1	0.1	0.1	0.1	3.1
Coal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
Electricity	1.3	2.0	3.0	4.2	5.5	7.2	9.0	6.7
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>2.6</b>	<b>3.3</b>	<b>4.5</b>	<b>5.9</b>	<b>7.2</b>	<b>9.0</b>	<b>11.0</b>	<b>4.9</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.2	0.2	0.2	0.2	0.2	2.3
Natural gas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.3
Coal	0.2	0.2	0.3	0.3	0.4	0.4	0.5	3.0
Electricity	0.5	0.6	0.9	1.2	1.5	1.8	2.1	5.2
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.8</b>	<b>1.1</b>	<b>1.4</b>	<b>1.8</b>	<b>2.2</b>	<b>2.6</b>	<b>3.0</b>	<b>4.3</b>
<b>Industrial</b>								
Liquid fuels	3.4	5.2	7.4	9.6	12.0	14.6	17.4	5.5
Natural gas	1.4	2.2	3.3	4.4	5.5	6.8	8.1	6.1
Coal	6.3	9.4	13.1	16.9	20.9	25.4	30.2	5.4
Electricity	2.3	3.5	4.7	5.8	7.0	8.3	9.6	4.8
Renewables	2.1	3.5	4.9	6.4	7.9	9.5	11.2	5.8
<b>Total</b>	<b>15.5</b>	<b>23.9</b>	<b>33.3</b>	<b>43.1</b>	<b>53.3</b>	<b>64.4</b>	<b>76.6</b>	<b>5.5</b>
<b>Transportation</b>								
Liquid fuels	4.0	6.0	8.1	10.2	12.3	14.2	15.6	4.6
Natural gas	0.3	0.4	0.6	0.8	1.0	1.3	1.7	6.4
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.1	0.1	0.2	0.4	0.6	1.0	1.4	9.3
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>4.4</b>	<b>6.6</b>	<b>8.9</b>	<b>11.4</b>	<b>14.0</b>	<b>16.5</b>	<b>18.7</b>	<b>5.0</b>
<b>All end-use sectors</b>								
Liquid fuels	8.7	12.6	16.9	21.4	26.0	30.5	34.9	4.7
Natural gas	1.8	2.8	4.0	5.4	6.8	8.3	10.0	6.0
Coal	6.6	9.8	13.4	17.3	21.4	25.9	30.8	5.3
Electricity	4.2	6.3	8.7	11.6	14.6	18.2	22.2	5.7
Renewables	2.1	3.5	5.0	6.4	7.9	9.5	11.3	5.8
Delivered energy	23.4	34.9	48.1	62.1	76.7	92.5	109.2	5.3
Electricity-related losses	7.9	13.9	17.6	21.9	27.0	33.5	41.0	5.7
Discrepancy	0.3	0.7	1.0	1.3	1.7	2.1	2.5	7.5
<b>Total</b>	<b>31.5</b>	<b>49.5</b>	<b>66.7</b>	<b>85.3</b>	<b>105.4</b>	<b>128.0</b>	<b>152.6</b>	<b>5.4</b>
<b>Electric power</b>								
Liquid fuels	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-11.1
Natural gas	0.5	0.5	0.5	0.4	0.3	0.3	0.3	-2.2
Coal	8.1	11.5	12.0	13.4	14.7	15.7	18.1	2.7
Nuclear	0.4	0.5	0.7	0.8	1.1	1.3	1.6	4.4
Renewables	3.0	7.5	13.0	18.7	25.4	34.2	43.2	9.3
<b>Total</b>	<b>12.0</b>	<b>20.1</b>	<b>26.3</b>	<b>33.4</b>	<b>41.5</b>	<b>51.6</b>	<b>63.1</b>	<b>5.7</b>
<b>Total energy consumption</b>								
Liquid fuels	8.8	12.9	17.2	21.8	26.5	31.1	35.4	4.8
Natural gas	2.1	3.1	4.2	5.4	6.6	8.0	9.5	5.2
Coal	15.0	21.8	26.0	31.5	37.0	42.6	50.0	4.1



Nuclear	0.4	0.6	0.8	0.8	1.1	1.4	1.6	4.4
Renewables	5.2	11.3	18.5	25.9	34.3	45.0	56.1	8.3
<b>Total</b>	<b>31.5</b>	<b>49.5</b>	<b>66.7</b>	<b>85.3</b>	<b>105.4</b>	<b>128.0</b>	<b>152.6</b>	<b>5.4</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F15. Delivered energy consumption in Other Non-OECD Asia by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
								2020–2050
Residential								
Liquid fuels	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.3
Natural gas	0.5	0.5	0.5	0.6	0.6	0.7	0.7	1.0
Coal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Electricity	1.8	2.2	2.6	2.9	3.5	4.0	4.5	3.2
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Total	3.0	3.4	3.8	4.3	4.9	5.4	6.0	2.3
Commercial								
Liquid fuels	0.3	0.3	0.4	0.4	0.4	0.4	0.5	1.0
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	0.6
Electricity	1.3	1.6	1.9	2.2	2.7	3.0	3.5	3.4
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
Total	1.7	2.0	2.4	2.7	3.2	3.6	4.1	2.9
Industrial								
Liquid fuels	5.2	6.5	7.8	9.3	11.0	12.6	14.3	3.4
Natural gas	4.6	5.9	7.0	8.2	9.7	11.3	12.8	3.5
Coal	3.7	4.5	5.4	6.3	7.4	8.5	9.6	3.2
Electricity	2.0	2.6	3.1	3.7	4.4	5.1	5.8	3.5
Renewables	3.0	3.9	4.7	5.7	6.7	7.7	8.8	3.6
Total	18.6	23.4	28.0	33.3	39.2	45.2	51.3	3.4
Transportation								
Liquid fuels	10.4	12.9	14.7	16.6	18.7	21.0	23.0	2.7
Natural gas	0.1	0.2	0.2	0.4	0.7	1.0	1.5	9.4
Coal	0.0	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	9.4
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	10.5	13.1	14.9	17.0	19.4	22.0	24.6	2.9
All end-use sectors								
Liquid fuels	16.6	20.3	23.5	27.0	30.8	34.7	38.5	2.8
Natural gas	5.3	6.6	7.8	9.2	11.1	13.0	15.1	3.5
Coal	3.8	4.6	5.5	6.4	7.5	8.6	9.7	3.2
Electricity	5.1	6.4	7.6	8.9	10.6	12.1	13.9	3.4
Renewables	3.0	3.9	4.7	5.7	6.7	7.8	8.8	3.6
Delivered energy	33.9	41.9	49.1	57.3	66.7	76.3	86.0	3.2
Electricity-related losses	8.5	10.8	13.1	15.2	17.6	19.6	21.8	3.2
Discrepancy	0.2	1.0	1.2	1.4	1.6	1.9	2.1	8.7
Total	42.5	53.7	63.4	73.9	86.0	97.8	109.9	3.2
Electric power								
Liquid fuels	0.8	0.9	0.4	0.2	0.1	0.0	0.0	-18.8
Natural gas	4.6	4.5	4.5	4.0	3.5	3.1	2.7	-1.7
Coal	4.9	7.4	9.8	11.4	14.1	16.8	19.9	4.8
Nuclear	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Renewables	3.0	4.1	5.7	8.2	10.1	11.6	12.7	4.9
Total	13.6	17.2	20.7	24.2	28.3	31.8	35.8	3.3
Total energy consumption								
Liquid fuels	16.9	21.4	24.1	27.5	31.2	35.1	38.9	2.8
Natural gas	10.2	11.4	12.7	13.6	15.1	16.6	18.4	2.0
Coal	8.9	12.4	15.6	18.3	22.2	26.0	30.4	4.2

Nuclear	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Renewables	6.2	8.0	10.6	14.1	17.2	19.7	21.9	4.3
<b>Total</b>	<b>42.5</b>	<b>53.7</b>	<b>63.4</b>	<b>73.9</b>	<b>86.0</b>	<b>97.8</b>	<b>109.9</b>	<b>3.2</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F16. Delivered energy consumption in the Middle East by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.4	0.3	0.3	0.3	0.3	0.3	0.3	-0.8
Natural gas	1.8	1.8	1.9	2.0	2.2	2.4	2.5	1.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2
Electricity	1.7	1.9	2.0	2.1	2.4	2.7	3.0	2.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>3.8</b>	<b>4.0</b>	<b>4.2</b>	<b>4.4</b>	<b>5.0</b>	<b>5.4</b>	<b>5.8</b>	<b>1.4</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-1.2
Natural gas	0.5	0.6	0.6	0.7	0.8	0.8	0.8	1.6
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	1.1	1.3	1.4	1.6	1.9	2.1	2.3	2.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>1.7</b>	<b>2.0</b>	<b>2.1</b>	<b>2.3</b>	<b>2.7</b>	<b>2.9</b>	<b>3.2</b>	<b>2.2</b>
<b>Industrial</b>								
Liquid fuels	6.5	8.1	9.0	10.0	10.9	11.5	11.8	2.0
Natural gas	9.0	11.0	12.6	13.9	15.1	15.8	16.1	2.0
Coal	0.1	0.2	0.2	0.2	0.2	0.2	0.2	1.1
Electricity	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
<b>Total</b>	<b>16.1</b>	<b>19.7</b>	<b>22.3</b>	<b>24.6</b>	<b>26.7</b>	<b>28.1</b>	<b>28.8</b>	<b>2.0</b>
<b>Transportation</b>								
Liquid fuels	6.8	7.6	7.9	8.4	9.2	9.8	10.5	1.4
Natural gas	0.1	0.2	0.2	0.3	0.4	0.5	0.6	6.8
Coal	0.0	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	-4.8
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>6.9</b>	<b>7.8</b>	<b>8.1</b>	<b>8.7</b>	<b>9.6</b>	<b>10.3</b>	<b>11.1</b>	<b>1.6</b>
<b>All end-use sectors</b>								
Liquid fuels	13.7	16.0	17.2	18.7	20.3	21.6	22.5	1.7
Natural gas	11.3	13.5	15.4	16.9	18.5	19.5	20.1	1.9
Coal	0.1	0.2	0.2	0.2	0.2	0.2	0.2	1.1
Electricity	3.3	3.7	4.0	4.3	4.9	5.4	5.9	2.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
Delivered energy	28.5	33.4	36.7	40.1	43.9	46.8	48.8	1.8
Electricity-related losses	6.2	8.3	7.4	7.9	8.7	9.3	9.8	1.5
Discrepancy	0.5	-0.4	-0.2	0.0	0.1	0.2	0.2	-2.9
<b>Total</b>	<b>35.2</b>	<b>41.3</b>	<b>44.0</b>	<b>47.9</b>	<b>52.7</b>	<b>56.2</b>	<b>58.8</b>	<b>1.7</b>
<b>Electric power</b>								
Liquid fuels	1.9	2.9	1.4	0.6	0.3	0.1	0.0	-12.5
Natural gas	7.3	8.2	8.1	7.6	7.9	8.3	8.9	0.7
Coal	0.0	0.0	0.1	0.4	0.2	0.4	0.4	--
Nuclear	0.1	0.4	0.6	0.8	0.9	0.9	0.9	9.0
Renewables	0.2	0.5	1.3	2.8	4.4	5.1	5.6	11.9
<b>Total</b>	<b>9.5</b>	<b>12.0</b>	<b>11.4</b>	<b>12.2</b>	<b>13.6</b>	<b>14.7</b>	<b>15.7</b>	<b>1.7</b>
<b>Total energy consumption</b>								
Liquid fuels	15.5	17.8	17.7	18.5	19.8	20.9	21.7	1.1
Natural gas	19.2	22.3	24.2	25.2	27.1	28.7	29.9	1.5
Coal	0.1	0.2	0.2	0.5	0.3	0.5	0.5	4.8

Nuclear	0.1	0.4	0.6	0.8	0.9	0.9	0.9	9.0
Renewables	0.2	0.6	1.4	2.9	4.6	5.3	5.8	11.6
<b>Total</b>	<b>35.2</b>	<b>41.3</b>	<b>44.0</b>	<b>47.9</b>	<b>52.7</b>	<b>56.2</b>	<b>58.8</b>	<b>1.7</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

- Notes:
- \* Totals may not equal sum of components due to independent rounding.
  - \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
  - \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
  - \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F17. Delivered energy consumption in Africa by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.3
Natural gas	0.5	0.6	0.6	0.7	0.8	0.9	1.0	2.1
Coal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
Electricity	0.8	1.1	1.3	1.7	2.0	2.5	3.0	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>2.4</b>	<b>2.8</b>	<b>3.3</b>	<b>3.7</b>	<b>4.2</b>	<b>4.9</b>	<b>2.7</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Coal	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.0
Electricity	0.4	0.5	0.6	0.7	0.8	0.9	1.1	3.1
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.6</b>	<b>0.7</b>	<b>0.8</b>	<b>1.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.4</b>	<b>2.7</b>
<b>Industrial</b>								
Liquid fuels	1.4	1.7	2.0	2.3	2.8	3.3	3.8	3.3
Natural gas	2.1	2.5	2.9	3.4	4.1	4.8	5.4	3.3
Coal	1.6	1.9	2.2	2.5	3.0	3.5	4.0	3.1
Electricity	1.0	1.1	1.3	1.6	1.9	2.2	2.5	3.3
Renewables	3.3	3.8	4.5	5.4	6.4	7.5	8.6	3.2
<b>Total</b>	<b>9.4</b>	<b>11.0</b>	<b>12.9</b>	<b>15.2</b>	<b>18.1</b>	<b>21.2</b>	<b>24.4</b>	<b>3.2</b>
<b>Transportation</b>								
Liquid fuels	4.8	6.1	7.2	8.3	9.6	11.3	13.3	3.4
Natural gas	0.0	0.1	0.1	0.1	0.2	0.2	0.3	7.0
Coal	0.0	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	2.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>4.9</b>	<b>6.2</b>	<b>7.3</b>	<b>8.4</b>	<b>9.8</b>	<b>11.6</b>	<b>13.6</b>	<b>3.5</b>
<b>All end-use sectors</b>								
Liquid fuels	6.9	8.4	9.8	11.3	13.2	15.3	17.9	3.2
Natural gas	2.6	3.1	3.6	4.3	5.1	5.9	6.7	3.2
Coal	1.9	2.3	2.5	2.9	3.4	3.9	4.4	2.8
Electricity	2.3	2.7	3.3	4.0	4.7	5.6	6.7	3.7
Renewables	3.3	3.8	4.5	5.4	6.4	7.5	8.6	3.2
Delivered energy	17.1	20.4	23.8	27.9	32.7	38.3	44.3	3.2
Electricity-related losses	5.0	6.0	6.8	7.5	8.4	9.9	11.7	2.9
Discrepancy	0.8	1.0	1.1	1.2	1.4	1.6	1.8	2.7
<b>Total</b>	<b>22.9</b>	<b>27.4</b>	<b>31.7</b>	<b>36.6</b>	<b>42.5</b>	<b>49.7</b>	<b>57.9</b>	<b>3.1</b>
<b>Electric power</b>								
Liquid fuels	0.7	0.7	0.2	0.0	0.0	0.0	0.0	-15.1
Natural gas	3.1	3.2	3.9	4.3	4.6	4.5	5.1	1.7
Coal	1.9	2.3	2.6	2.7	2.2	1.7	1.7	-0.3
Nuclear	0.1	0.1	0.3	0.4	0.5	0.5	0.6	6.0
Renewables	1.4	2.3	3.1	4.0	5.8	8.8	10.9	7.0
<b>Total</b>	<b>7.2</b>	<b>8.7</b>	<b>10.1</b>	<b>11.5</b>	<b>13.1</b>	<b>15.5</b>	<b>18.4</b>	<b>3.2</b>
<b>Total energy consumption</b>								
Liquid fuels	8.4	10.1	11.0	12.4	14.3	16.6	19.3	2.8
Natural gas	5.7	6.3	7.4	8.5	9.6	10.2	11.7	2.4
Coal	3.9	4.6	5.2	5.7	5.7	5.7	6.3	1.6

Nuclear	0.1	0.1	0.3	0.5	0.6	0.6	0.7	6.0
Renewables	4.8	6.3	7.8	9.5	12.4	16.6	19.9	4.8
<b>Total</b>	<b>22.9</b>	<b>27.4</b>	<b>31.7</b>	<b>36.6</b>	<b>42.5</b>	<b>49.7</b>	<b>57.9</b>	<b>3.1</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F18. Delivered energy consumption in Brazil by end-use sector and fuel, High Economic Growth case**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.9
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.9</b>	<b>0.9</b>	<b>1.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.3</b>	<b>1.5</b>
<b>Commercial</b>								
Liquid fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.5	0.6	0.7	0.8	0.9	0.9	1.0	2.1
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.6</b>	<b>0.7</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>	<b>1.0</b>	<b>1.0</b>	<b>2.0</b>
<b>Industrial</b>								
Liquid fuels	1.7	2.0	2.3	2.5	2.7	2.9	3.1	2.1
Natural gas	0.7	0.9	1.0	1.0	1.1	1.2	1.2	1.8
Coal	0.5	0.6	0.6	0.7	0.7	0.7	0.8	1.7
Electricity	0.7	0.8	0.9	0.9	1.0	1.1	1.1	1.7
Renewables	2.4	3.0	3.4	3.9	4.2	4.6	4.9	2.4
<b>Total</b>	<b>6.0</b>	<b>7.2</b>	<b>8.1</b>	<b>9.0</b>	<b>9.8</b>	<b>10.5</b>	<b>11.2</b>	<b>2.1</b>
<b>Transportation</b>								
Liquid fuels	3.7	4.4	4.8	5.2	5.6	6.0	6.3	1.8
Natural gas	0.0	0.1	0.1	0.1	0.1	0.2	0.2	5.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.1	0.1	0.1	4.1
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>3.8</b>	<b>4.5</b>	<b>4.9</b>	<b>5.3</b>	<b>5.8</b>	<b>6.2</b>	<b>6.7</b>	<b>1.9</b>
<b>All end-use sectors</b>								
Liquid fuels	5.7	6.7	7.4	8.0	8.7	9.3	9.8	1.8
Natural gas	0.8	1.0	1.1	1.2	1.3	1.4	1.5	2.2
Coal	0.5	0.6	0.6	0.7	0.7	0.7	0.8	1.7
Electricity	1.8	2.0	2.3	2.6	2.8	3.0	3.2	1.9
Renewables	2.4	3.0	3.4	3.9	4.2	4.6	4.9	2.4
Delivered energy	11.2	13.3	14.8	16.3	17.7	19.0	20.3	2.0
Electricity-related losses	3.4	3.7	4.1	4.5	4.9	5.3	5.7	1.8
Discrepancy	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.2
<b>Total</b>	<b>14.9</b>	<b>17.3</b>	<b>19.2</b>	<b>21.2</b>	<b>22.9</b>	<b>24.7</b>	<b>26.4</b>	<b>1.9</b>
<b>Electric power</b>								
Liquid fuels	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-12.5
Natural gas	0.4	0.6	0.5	0.4	0.3	0.2	0.2	-2.3
Coal	0.1	0.1	0.2	0.2	0.0	0.0	0.0	-2.0
Nuclear	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.6
Renewables	4.5	4.8	5.4	6.3	7.1	7.9	8.5	2.1
<b>Total</b>	<b>5.2</b>	<b>5.7</b>	<b>6.4</b>	<b>7.1</b>	<b>7.7</b>	<b>8.3</b>	<b>8.9</b>	<b>1.8</b>
<b>Total energy consumption</b>								
Liquid fuels	5.8	6.9	7.4	8.0	8.7	9.3	9.8	1.8
Natural gas	1.2	1.6	1.7	1.6	1.7	1.7	1.8	1.3
Coal	0.5	0.7	0.8	0.8	0.8	0.8	0.8	1.5



Nuclear	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.6
Renewables	7.2	8.0	9.1	10.4	11.6	12.7	13.7	2.2
<b>Total</b>	<b>14.9</b>	<b>17.3</b>	<b>19.2</b>	<b>21.2</b>	<b>22.9</b>	<b>24.7</b>	<b>26.4</b>	<b>1.9</b>

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021*, (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

- \* Totals may not equal sum of components due to independent rounding.
- \* End-use sector electricity consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

**Table F19. Delivered energy consumption in Other Non-OECD Americas by end-use sector and fuel, High Economic Growth**

quadrillion British thermal units

Sector and fuel	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
<b>Residential</b>								
Liquid fuels	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
Natural gas	0.4	0.4	0.5	0.5	0.5	0.6	0.6	1.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Electricity	0.4	0.5	0.5	0.6	0.6	0.7	0.7	1.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>1.6</b>	<b>1.1</b>
<b>Commercial</b>								
Liquid fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
Natural gas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.3	0.4	0.5	0.6	0.7	0.8	0.9	3.5
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
<b>Total</b>	<b>0.5</b>	<b>0.6</b>	<b>0.7</b>	<b>0.8</b>	<b>0.9</b>	<b>1.0</b>	<b>1.1</b>	<b>2.8</b>
<b>Industrial</b>								
Liquid fuels	1.6	1.7	2.0	2.3	2.6	3.0	3.5	2.7
Natural gas	2.2	2.5	2.8	3.1	3.4	3.8	4.3	2.2
Coal	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.9
Electricity	0.4	0.5	0.6	0.6	0.7	0.8	0.9	2.3
Renewables	0.5	0.6	0.7	0.8	1.0	1.2	1.4	3.3
<b>Total</b>	<b>4.8</b>	<b>5.4</b>	<b>6.1</b>	<b>6.9</b>	<b>7.8</b>	<b>8.9</b>	<b>10.2</b>	<b>2.5</b>
<b>Transportation</b>								
Liquid fuels	2.6	3.5	3.9	4.3	4.7	5.1	5.5	2.6
Natural gas	0.0	0.0	0.1	0.1	0.1	0.1	0.2	5.8
Coal	0.0	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	-4.2
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.6</b>	<b>3.5</b>	<b>4.0</b>	<b>4.4</b>	<b>4.8</b>	<b>5.3</b>	<b>5.7</b>	<b>2.6</b>
<b>All end-use sectors</b>								
Liquid fuels	4.5	5.6	6.3	6.9	7.7	8.5	9.4	2.5
Natural gas	2.8	3.1	3.4	3.7	4.2	4.6	5.2	2.1
Coal	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.9
Electricity	1.2	1.4	1.6	1.8	2.0	2.2	2.5	2.4
Renewables	0.5	0.6	0.7	0.8	1.0	1.2	1.4	3.3
Delivered energy	9.1	10.7	12.1	13.4	14.9	16.7	18.6	2.4
Electricity-related losses	3.0	2.8	3.1	3.3	3.7	4.0	4.4	1.2
Discrepancy	0.6	0.7	0.8	0.9	1.0	1.1	1.2	2.1
<b>Total</b>	<b>12.8</b>	<b>14.3</b>	<b>16.0</b>	<b>17.5</b>	<b>19.6</b>	<b>21.8</b>	<b>24.1</b>	<b>2.2</b>
<b>Electric power</b>								
Liquid fuels	0.3	0.2	0.0	0.0	0.0	0.0	0.0	-16.5
Natural gas	1.4	1.1	1.0	1.1	1.0	0.9	0.9	-1.6
Coal	0.1	0.2	0.1	0.1	0.3	0.3	0.3	4.2
Nuclear	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.7
Renewables	2.3	2.6	3.4	3.6	4.2	4.9	5.5	2.9
<b>Total</b>	<b>4.3</b>	<b>4.2</b>	<b>4.7</b>	<b>5.1</b>	<b>5.6</b>	<b>6.3</b>	<b>6.8</b>	<b>1.6</b>
<b>Total energy consumption</b>								
Liquid fuels	5.1	6.2	6.8	7.4	8.2	9.1	10.0	2.3
Natural gas	4.4	4.4	4.6	5.1	5.4	5.8	6.4	1.2
Coal	0.2	0.3	0.2	0.3	0.5	0.5	0.5	3.6
Nuclear	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.7
Renewables	2.9	3.3	4.2	4.6	5.3	6.2	7.1	3.0

<b>Total</b>	<b>12.8</b>	<b>14.3</b>	<b>16.0</b>	<b>17.5</b>	<b>19.6</b>	<b>21.8</b>	<b>24.1</b>	<b>2.2</b>
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Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run hm\_210719.163753; and EIA, *Annual Energy Outlook 2021* , (February 2021), [www.eia.gov/aeo](http://www.eia.gov/aeo)

Notes:

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- \* End-use sector delivered energy consumption does not include electrical system energy losses incurred in the generation, transmission, and distribution of electricity.
- \* Electricity-related losses include energy losses during generation due to thermal efficiency, energy losses during transmission and distribution, and parasitic load.

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