

Table K1. Industrial sector energy consumption by region and sector, Reference case

quadrillion British thermal units

Region and sector	2020	2025	2030	2035	2040	2045	2050	Average annual percentage change, 2020–2050
OECD								
United States								
Energy-intensive manufacturing	15.8	17.1	17.6	18.1	18.5	19.0	19.7	0.7
Non-energy-intensive manufacturing	3.0	3.3	3.4	3.6	3.8	4.1	4.3	1.2
Nonmanufacturing	6.1	6.9	7.4	7.8	8.1	8.5	8.9	1.2
Total	24.9	27.4	28.4	29.4	30.3	31.5	32.9	0.9
Canada								
Energy-intensive manufacturing	1.9	2.1	2.3	2.5	2.6	2.8	3.0	1.7
Non-energy-intensive manufacturing	1.3	1.6	1.7	1.8	1.9	2.0	2.1	1.6
Nonmanufacturing	2.6	2.7	2.9	3.1	3.4	3.5	3.6	1.1
Total	5.8	6.5	6.9	7.4	7.9	8.3	8.8	1.4
Mexico and other OECD Americas								
Energy-intensive manufacturing	1.5	1.7	1.8	2.0	2.2	2.5	2.7	2.1
Non-energy-intensive manufacturing	1.7	2.2	2.5	2.8	3.2	3.5	3.8	2.6
Nonmanufacturing	0.8	0.9	0.9	1.0	1.1	1.1	1.1	1.0
Total	4.0	4.8	5.3	5.9	6.5	7.1	7.6	2.1
OECD Europe								
Energy-intensive manufacturing	14.9	16.5	17.1	17.8	18.7	19.5	20.5	1.1
Non-energy-intensive manufacturing	6.1	6.6	6.5	6.6	6.7	6.9	7.2	0.5
Nonmanufacturing	2.8	2.8	2.8	2.7	2.7	2.8	2.8	0.1
Total	23.8	25.9	26.4	27.2	28.1	29.2	30.5	0.8
Japan								
Energy-intensive manufacturing	4.8	5.2	5.1	5.0	4.8	4.7	4.5	-0.2
Non-energy-intensive manufacturing	1.4	1.4	1.4	1.3	1.2	1.1	1.1	-0.8
Nonmanufacturing	0.3	0.3	0.2	0.2	0.2	0.2	0.2	-0.9
Total	6.5	6.9	6.7	6.5	6.2	6.0	5.8	-0.3
South Korea								
Energy-intensive manufacturing	4.2	4.6	4.8	4.8	4.9	4.9	5.0	0.6
Non-energy-intensive manufacturing	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.8
Nonmanufacturing	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3
Total	5.4	6.0	6.3	6.5	6.6	6.8	6.9	0.9
Australia and New Zealand								
Energy-intensive manufacturing	1.2	1.2	1.3	1.3	1.4	1.4	1.5	0.8
Non-energy-intensive manufacturing	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.3
Nonmanufacturing	0.7	0.8	1.0	1.2	1.3	1.4	1.5	2.5
Total	2.6	2.7	3.0	3.2	3.4	3.6	3.7	1.2
Total OECD								
Energy-intensive manufacturing	44.1	48.5	50.0	51.5	53.1	54.8	56.9	0.9
Non-energy-intensive manufacturing	15.3	17.2	17.6	18.2	19.0	20.0	21.0	1.1
Nonmanufacturing	13.5	14.5	15.4	16.3	16.9	17.7	18.4	1.0
Total	72.9	80.2	82.9	86.0	89.0	92.5	96.3	0.9
Non-OECD								
Russia								
Energy-intensive manufacturing	8.9	10.4	10.8	11.1	11.4	11.6	11.6	0.9
Non-energy-intensive manufacturing	3.4	4.1	4.4	4.9	5.3	5.7	6.1	2.0
Nonmanufacturing	2.0	2.2	2.3	2.4	2.4	2.4	2.5	0.7
Total	14.2	16.7	17.5	18.3	19.1	19.8	20.2	1.2
Other Europe and Eurasia								
Energy-intensive manufacturing	3.3	3.7	3.9	4.3	4.7	5.2	5.6	1.8
Non-energy-intensive manufacturing	1.4	1.5	1.4	1.4	1.4	1.4	1.5	0.2
Nonmanufacturing	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.1

Total	5.6	6.2	6.4	6.8	7.3	7.8	8.3	1.3
China								
Energy-intensive manufacturing	51.4	53.5	52.8	52.1	51.4	50.9	50.0	-0.1
Non-energy-intensive manufacturing	17.7	20.1	21.0	21.8	22.2	22.4	22.5	0.8
Nonmanufacturing	5.8	6.1	6.4	6.5	6.5	6.5	6.5	0.4
Total	74.8	79.7	80.2	80.4	80.1	79.8	79.1	0.2
India								
Energy-intensive manufacturing	7.1	9.7	12.9	16.2	19.6	23.3	26.7	4.5
Non-energy-intensive manufacturing	6.7	10.5	14.0	17.5	20.8	24.0	27.0	4.8
Nonmanufacturing	1.7	2.2	2.6	3.0	3.3	3.5	3.7	2.6
Total	15.5	22.3	29.5	36.7	43.7	50.8	57.4	4.5
Other Asia								
Energy-intensive manufacturing	8.2	9.7	11.0	12.4	14.0	15.4	16.8	2.4
Non-energy-intensive manufacturing	9.3	11.4	13.3	15.1	16.8	18.2	19.4	2.5
Nonmanufacturing	1.1	1.1	1.1	1.2	1.4	1.6	1.8	1.6
Total	18.6	22.3	25.4	28.7	32.1	35.3	38.1	2.4
Middle East								
Energy-intensive manufacturing	6.0	7.1	7.4	7.9	8.3	8.5	8.6	1.2
Non-energy-intensive manufacturing	8.3	10.1	11.1	11.9	12.3	12.3	11.8	1.2
Nonmanufacturing	1.7	1.7	1.9	2.0	2.1	2.2	2.3	0.9
Total	16.1	18.9	20.5	21.7	22.7	23.0	22.7	1.2
Africa								
Energy-intensive manufacturing	2.9	3.4	3.8	4.3	4.8	5.4	6.0	2.4
Non-energy-intensive manufacturing	5.4	6.0	6.8	7.7	8.7	9.7	10.8	2.3
Nonmanufacturing	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.7
Total	9.4	10.6	11.8	13.3	15.0	16.7	18.5	2.3
Brazil								
Energy-intensive manufacturing	3.5	4.1	4.4	4.7	4.8	4.9	4.9	1.1
Non-energy-intensive manufacturing	1.6	1.9	2.1	2.3	2.4	2.5	2.5	1.6
Nonmanufacturing	0.9	0.9	1.0	1.0	1.0	1.1	1.1	0.7
Total	6.0	6.9	7.5	7.9	8.2	8.4	8.6	1.2
Other Non-OECD Americas								
Energy-intensive manufacturing	2.4	2.6	2.8	3.0	3.2	3.4	3.7	1.4
Non-energy-intensive manufacturing	1.5	1.8	2.1	2.5	3.0	3.6	4.4	3.5
Nonmanufacturing	0.9	0.9	0.9	0.9	0.9	0.9	1.0	0.3
Total	4.8	5.2	5.8	6.4	7.1	8.0	9.0	2.1
Total Non-OECD								
Energy-intensive manufacturing	93.7	104.1	109.8	116.0	122.3	128.6	133.9	1.2
Non-energy-intensive manufacturing	55.2	67.4	76.2	84.9	92.8	99.9	106.1	2.2
Nonmanufacturing	16.2	17.3	18.5	19.3	20.3	21.1	21.9	1.0
Total	165.1	188.7	204.5	220.3	235.4	249.6	261.9	1.6
World								
Energy-intensive manufacturing	137.8	152.6	159.8	167.5	175.3	183.4	190.8	1.1
Non-energy-intensive manufacturing	70.6	84.5	93.8	103.2	111.8	119.8	127.1	2.0
Nonmanufacturing	29.7	31.8	33.9	35.6	37.3	38.8	40.3	1.0
Total	238.0	268.9	287.4	306.3	324.4	342.1	358.2	1.4

Sources: U.S. Energy Information Administration (EIA), World Energy Projection System (2021), run r_210719.163829; and EIA, *Annual Energy Outlook 2021*, (February 2021), www.eia.gov/aeo

Notes:

* 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.