International Energy Outlook 2023 Release date: October 2023

Table K3. Industrial sector energy intensity by region and sector, Reference case

thousand British thermal units per 2015 dollar

								percentage change
Region and sector	2022	2025	2030	2035	2040	2045	2050	2022–205
Americas								
United States								
Energy-intensive manufacturing	7.3	7.1	6.9	6.7	6.4	6.0	5.7	-0.9%
Non-energy-intensive manufacturing	0.8	0.8	0.7	0.7	0.6	0.6	0.5	-1.6%
Nonmanufacturing	2.6	2.4	2.3	2.1	1.9	1.8	1.7	-1.6%
Total	3.2	3.0	2.8	2.7	2.5	2.3	2.1	-1.5%
Canada								
Energy-intensive manufacturing	8.0	8.6	8.7	8.8	8.9	9.0	8.9	0.4%
Non-energy-intensive manufacturing	4.5	4.3	4.1	4.0	3.9	3.9	3.8	-0.6%
Nonmanufacturing	4.8	4.9	4.5	4.4	4.3	4.2	4.2	-0.5%
Total	5.5	5.6	5.4	5.3	5.3	5.3	5.3	-0.1%
Mexico								
Energy-intensive manufacturing	2.2	2.2	2.1	2.1	2.1	2.1	2.2	-0.1%
Non-energy-intensive manufacturing	1.3	1.2	1.3	1.3	1.2	1.1	1.0	-0.7%
Nonmanufacturing	1.4	1.5	1.7	1.6	1.5	1.5	1.4	0.2%
Total	1.5	1.5	1.6	1.6	1.5	1.5	1.4	-0.3%
Brazil								
Energy-intensive manufacturing	4.1	4.0	3.9	3.9	3.9	3.9	3.9	-0.2%
Non-energy-intensive manufacturing	2.8	2.7	2.7	2.7	2.7	2.7	2.7	-0.1%
Nonmanufacturing	1.1	1.1	1.1	1.0	1.0	1.0	1.0	-0.5%
Total	2.8	2.7	2.6	2.6	2.6	2.6	2.6	-0.3%
Other Americas								
Energy-intensive manufacturing	2.5	2.5	2.3	2.3	2.2	2.2	2.1	-0.6%
Non-energy-intensive manufacturing	2.4	2.5	2.6	2.6	2.6	2.6	2.7	0.4%
Nonmanufacturing	1.0	1.0	0.9	0.9	0.9	0.9	0.9	-0.5%
Total	1.9	1.9	1.9	1.8	1.8	1.8	1.8	-0.1%
Europe and Eurasia								
Western Europe								
Energy-intensive manufacturing	3.3	3.2	3.2	3.2	3.2	3.2	3.2	-0.1%
Non-energy-intensive manufacturing	0.8	0.8	0.7	0.7	0.6	0.6	0.6	-1.4%
Nonmanufacturing	0.7	0.6	0.6	0.6	0.6	0.6	0.5	-0.8%
Total	1.5	1.4	1.3	1.3	1.3	1.2	1.2	-0.7%
Russia								
Energy-intensive manufacturing	10.6	10.0	9.5	9.2	8.9	8.7	8.5	-0.8%
Non-energy-intensive manufacturing	6.8	6.7	6.7	6.6	6.6	6.7	6.8	0.0%
Nonmanufacturing	1.9	1.6	1.5	1.5	1.5	1.5	1.5	-0.8%
Total	5.7	5.6	5.4	5.4	5.4	5.4	5.5	-0.2%
Eastern Europe and Eurasia								
Energy-intensive manufacturing	9.1	9.0	8.4	7.8	7.3	6.9	6.5	-1.2%
Non-energy-intensive manufacturing	7.8	6.3	5.1	4.5	4.0	3.7	3.6	-2.8%
Nonmanufacturing	1.0	1.0	1.0	1.0	0.9	0.9	0.9	-0.5%
Total	3.4	3.3	3.0	2.8	2.7	2.6	2.6	-1.0%
Asia Pacific								
Japan								
Energy-intensive manufacturing	5.0	4.9	4.7	4.6	4.5	4.4	4.3	-0.5%
Non-energy-intensive manufacturing	0.5	0.5	0.4	0.4	0.4	0.4	0.4	-1.4%
Nonmanufacturing	0.5	0.5	0.5	0.5	0.4	0.4	0.5	-0.5%
Total	1.5	1.4	1.3	1.2	1.2	1.1	1.1	-1.2%
South Korea			-					
Energy-intensive manufacturing	4.2	4.0	4.0	4.0	4.0	4.1	4.2	0.0%
Non-energy-intensive manufacturing	0.7	0.6	0.6	0.6	0.6	0.6	0.6	-0.2%

Nonmanufacturing	0.5	0.5	0.5	0.4	0.4	0.4	0.4	-1.0%
Total	1.8	1.8	1.7	1.6	1.6	1.6	1.6	-0.5%
Australia and New Zealand								
Energy-intensive manufacturing	6.6	6.4	6.2	6.0	5.8	5.6	5.5	-0.6%
Non-energy-intensive manufacturing	3.9	4.0	4.0	4.0	3.9	3.9	3.8	-0.1%
Nonmanufacturing	1.7	1.5	1.4	1.4	1.4	1.5	1.5	-0.4%
Total	2.9	2.9	2.7	2.6	2.6	2.5	2.5	-0.6%
China								
Energy-intensive manufacturing	5.2	4.7	4.1	3.7	3.3	3.1	2.9	-2.1%
Non-energy-intensive manufacturing	0.9	0.8	0.7	0.6	0.6	0.6	0.5	-1.7%
Nonmanufacturing	0.5	0.4	0.4	0.3	0.3	0.3	0.3	-1.5%
Total	1.7	1.6	1.3	1.2	1.1	1.0	0.9	-2.2%
India								
Energy-intensive manufacturing	2.3	2.2	2.0	1.8	1.7	1.7	1.6	-1.2%
Non-energy-intensive manufacturing	2.7	2.6	2.5	2.3	2.2	2.1	2.0	-1.2%
Nonmanufacturing	0.4	0.4	0.4	0.3	0.3	0.3	0.3	-1.1%
Total	1.7	1.6	1.5	1.5	1.4	1.4	1.3	-0.8%
Other Asia Pacific								
Energy-intensive manufacturing	1.6	1.6	1.5	1.4	1.2	1.1	1.1	-1.5%
Non-energy-intensive manufacturing	1.0	1.0	1.0	0.9	0.9	0.9	0.9	-0.5%
Nonmanufacturing	0.3	0.3	0.3	0.3	0.2	0.2	0.2	-1.8%
Total	1.0	0.9	0.9	0.9	0.8	0.8	0.7	-0.9%
Africa and Middle East								
Africa								
Energy-intensive manufacturing	2.3	2.3	2.2	2.1	2.0	2.0	2.1	-0.5%
Non-energy-intensive manufacturing	6.4	6.4	6.5	6.7	6.8	6.9	6.9	0.3%
Nonmanufacturing	0.5	0.4	0.4	0.4	0.4	0.3	0.3	-1.3%
Total	2.0	1.9	1.9	2.0	2.0	2.1	2.1	0.2%
Middle East								
Energy-intensive manufacturing	4.8	4.7	4.5	4.4	4.3	4.3	4.2	-0.5%
Non-energy-intensive manufacturing	9.5	8.8	8.2	7.8	7.5	7.2	6.9	-1.1%
Nonmanufacturing	1.0	1.2	1.3	1.2	1.3	1.4	1.5	1.3%
Total	3.6	3.5	3.5	3.4	3.4	3.4	3.4	-0.2%
World								
Energy-intensive manufacturing	4.2	4.0	3.6	3.3	3.0	2.8	2.7	-1.6%
Non-energy-intensive manufacturing	1.3	1.2	1.2	1.1	1.1	1.1	1.1	-0.7%
Nonmanufacturing	0.8	0.7	0.7	0.6	0.6	0.6	0.6	-1.1%
Total	1.9	1.8	1.6	1.5	1.5	1.4	1.4	-1.2%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run r_230822.081459 and Annual Energy Outlook 2023 (March 2023), 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.