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Table K3. Industrial sector energy intensity by region and sector, Low Zero-carbon Technology Cost case

thousand British thermal units per 2015 dollar

								percentage change
Region and sector	2022	2025	2030	2035	2040	2045	2050	2022–2050
Americas								
United States								
Energy-intensive manufacturing	7.3	7.2	7.0	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	-1.5%
Nonmanufacturing	2.6	2.4	2.3	2.1	1.9	1.8	1.6	-1.7%
Total	3.2	3.0	2.8	2.7	2.5	2.3	2.1	-1.5%
Canada								
Energy-intensive manufacturing	8.0	8.2	8.6	8.7	8.9	9.1	9.1	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	4.3	4.2	4.1	3.9	-0.7%
Total	5.5	5.5	5.4	5.3	5.3	5.3	5.2	-0.2%
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	1.4	1.6	1.6	1.5	1.5	1.4	0.1%
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	2.8	2.7	2.7	-0.1%
Nonmanufacturing	1.1	1.1	1.1	1.0	1.0	1.0	1.0	-0.6%
Total	2.8	2.7	2.6	2.6	2.6	2.6	2.6	-0.3%
Other Americas								
Energy-intensive manufacturing	2.5	2.4	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	0.8	-0.7%
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	5.8	5.6	5.4	5.4	5.4	5.4	5.5	-0.2%
Eastern Europe and Eurasia					_	_		
Energy-intensive manufacturing	9.1	8.8	8.5	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	0.1	0.0	0.0					
Japan								
Energy-intensive manufacturing	4.9	4.8	4.6	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	0.4	0.4	0.4	0.4	0.4	-0.6%
Total	1.5	0.3 1.4	0.3 1.3	0.3 1.2	1.2	0.4 1.1	0.4 1.1	-0.0%
South Korea	1.3	1.4	1.3	1.2	1.2	1.1	1.1	-1.1/0
Energy-intensive manufacturing	4.2	4.0	4.0	3.9	4.0	4.1	4.2	0.0%
Non-energy-intensive manufacturing	4.2	0.6	0.6	0.6	0.6	0.6	4.2 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	6.3	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	1.4	1.4	-0.6%
Total	2.9	2.9	2.7	2.6	2.5	2.5	2.4	-0.7%
China								
Energy-intensive manufacturing	5.2	4.8	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	1.9	-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	2.1	2.0	2.1	-0.5%
Non-energy-intensive manufacturing	6.4	6.4	6.5	6.6	6.8	6.9	6.9	0.3%
Nonmanufacturing	0.5	0.4	0.4	0.3	0.3	0.3	0.3	-1.6%
Total	2.0	1.9	1.9	2.0	2.0	2.0	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	1.3	1.3	1.4	1.6	1.5%
Total	3.6	3.5	3.5	3.4	3.4	3.4	3.4	-0.2%
World								
Energy-intensive manufacturing	4.2	3.9	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	1.3	-1.2%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run Iz_230821.151531 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.