Table K3. Industrial sector energy intensity by region and sector, High Zero-carbon Technology Cost case thousand British thermal units per 2015 dollar

Average annual percentage change, Region and sector 2022 2025 2030 2035 2040 2045 2050 2022-2050 Americas **United States** -0.9% Energy-intensive manufacturing 7.3 7.2 7.0 6.8 6.4 6.1 5.8 Non-energy-intensive manufacturing 8.0 0.8 0.7 0.7 0.6 0.6 0.5 -1.6% 1.8 -1.6% Nonmanufacturing 2.6 2.4 2.3 2.1 2.0 1.7 -1.5% 3.2 3.0 2.8 2.7 2.5 2.3 2.1 Canada Energy-intensive manufacturing 8.0 8.2 8.6 8.8 8.9 9.1 9.1 0.5% Non-energy-intensive manufacturing 4.5 4.3 4.1 4.0 3.9 3.9 3.8 -0.6% -0.4% 4.8 4.6 Nonmanufacturing 4.9 4.4 4.4 4.4 4.3 -0.1% Total 5.5 5.5 5.4 5.4 5.4 5.4 5.4 Mexico -0.1% Energy-intensive manufacturing 2.2 2.2 2.1 2.1 2.1 2.1 2.2 Non-energy-intensive manufacturing 1.2 1.3 1.3 1.2 1.1 1.0 -0.7% 1.3 0.1% Nonmanufacturing 1.4 1.5 1.6 1.6 1.5 1.5 1.4 -0.3% Total 1.5 1.5 1.6 1.6 1.5 1.5 1.4 Brazil -0.2% Energy-intensive manufacturing 4.1 4.0 3.9 3.9 3.9 3.9 3.9 2.7 -0.1% Non-energy-intensive manufacturing 2.8 2.7 2.7 2.7 2.7 2.7 -0.5% Nonmanufacturing 1.1 1.1 1.1 1.0 1.0 1.0 1.0 -0.3% Total 2.8 2.7 2.6 2.6 2.6 2.6 2.6 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 2.5 2.6 2.6 2.6 0.4% 2.4 2.6 2.7 Nonmanufacturing 1.0 1.0 1.0 0.9 0.9 0.9 0.9 -0.3% Total 1.9 1.9 1.9 1.8 1.8 1.8 1.8 -0.1% **Europe and Eurasia** Western Europe -0.1% 3.3 3.2 3.2 3.1 3.2 3.2 Energy-intensive manufacturing 3.2 Non-energy-intensive manufacturing 8.0 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 0.5 0.5 -0.8% -0.7% Total 1.5 1.4 1.3 1.3 1.3 1.2 1.2 Russia 10.6 10.0 9.5 9.2 8.9 8.7 8.5 -0.8% Energy-intensive manufacturing Non-energy-intensive manufacturing 0.0% 6.8 6.7 6.7 6.6 6.6 6.7 6.8 1.9 -0.8% Nonmanufacturing 1.6 1.5 1.5 1.5 1.5 1.5 -0.2% Total 5.8 5.6 5.4 5.4 5.4 5.4 5.5 **Eastern Europe and Eurasia** -1.2% Energy-intensive manufacturing 9.1 8.8 8.5 7.8 7.3 6.9 6.6 Non-energy-intensive manufacturing -2.8% 7.8 6.3 5.1 4.5 4.0 3.7 3.6 Nonmanufacturing -0.4% 1.0 1.0 1.0 1.0 0.9 0.9 0.9 Total 3.4 3.3 3.0 2.8 2.7 2.6 2.6 -1.0% **Asia Pacific** Japan Energy-intensive manufacturing 4.9 4.8 4.6 4.6 4.4 -0.5% 4.3 Non-energy-intensive manufacturing -1.4% 0.5 0.5 0.4 0.4 0.4 0.4 0.4 Nonmanufacturing 0.5 0.5 0.5 0.5 0.4 0.4 0.5 -0.6% Total 1.5 -1.1% 1.4 1.3 1.2 1.2 1.1 1.1 **South Korea** 4.2 4.0 4.0 0.0% Energy-intensive manufacturing 3.9 4.0 4.1 4.2 -0.2% Non-energy-intensive manufacturing 0.7 0.6 0.6 0.6 0.6 0.6 0.6

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	1.5	1.4	1.4	1.5	1.5	-0.3%
Total	2.9	2.9	2.7	2.6	2.6	2.5	2.5	-0.5%
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	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	-1.7%
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	6.7	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	2.0	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	1.1	1.2	1.2	1.3	1.4	1.5	1.3%
Total	3.6	3.5	3.4	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	1.4	-1.2%

Data source: U.S. Energy Information Administration, World Energy Projection System (2023), run hz\_230821.151430 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.