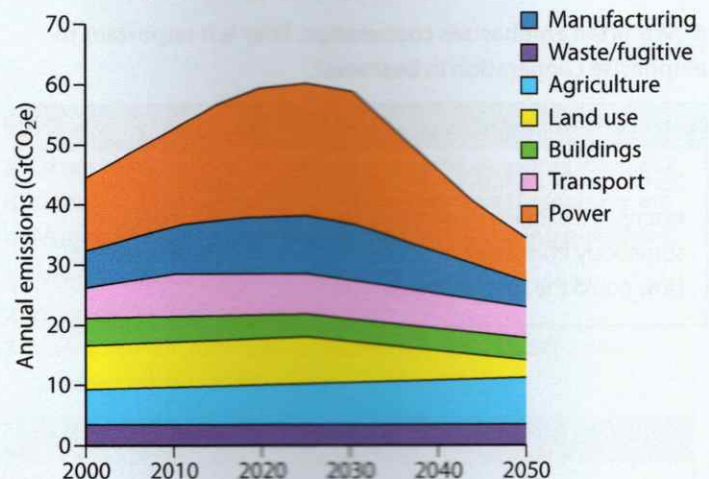## Learning outcomes

- Compare and contrast figures and trends.
- Write a report describing figures and trends in graphs.
- Understand the issue of carbon emissions across industries.

Writing skill: Describing graphs

The graph below predicts possible carbon emissions scenarios if governments and other policy-makers follow certain regulations. Regulations could include lower speed limits for vehicles, energy efficiency standards for factories and machinery, and prohibiting the sale of certain products such as high-energy light bulbs.

Introduction

1 Are you worried about global warming? Why/Why not?

2 Which of the possible effects of global warming below do you think is the biggest problem? Order them in terms of seriousness:

- rising sea levels
- reduced tourism
- species extinction
- water shortages
- increased disease

3 The need to reduce carbon emissions across industries to slow down global warming is often discussed. Which of the following situations do you think are most likely to happen? Which would have the greatest effect?

- Consumers change their behaviour and demand low-carbon products.
- Governments make regulations, such as a carbon tax for high-carbon industries.
- Technological advances (for example electric cars) lead to new ways to cut emissions.

4 Different industries produce different amounts of carbon. Look at the pictures above, and match them with these industries. Which one do you think produces the most carbon, and which produces the least?

a power   **b** agriculture   **c** manufacturing   **d** transport
e waste disposal

Evolution of transmissions by major industrial category for Targeted regulation scenario

Annual emissions (GtCO$_2$e)

Legend:
- Manufacturing
- Waste/fugitive
- Agriculture
- Land use
- Buildings
- Transport
- Power

Horizontal axis: 2000, 2010, 2020, 2030, 2040, 2050
Vertical axis: 0, 10, 20, 30, 40, 50, 60, 70

Source: Carbon Trust and Oxera analysis
GtCO$_2$e = Global tonnes of CO$_2$ equivalent

1 Discuss these questions and make notes.

1 What does the brief description above the graph tell you?
2 What does the title of the graph tell you?
3 What do the vertical and horizontal axes show?
4 What are the general trends over the 50-year period?
5 How do emission level differences compare across differing decades? Example: In the 2020s ... however, in 2030 ...
6 How do certain industries differ at the same point in time? Example: In 2040, the manufacturing industry's emissions ...

2 Summarise the information on the graph in one sentence.

When describing graphs, two of the key functions are making comparisons and contrasts.

1 What are the mistakes in the following sentences?

- The percentage of male and female executives is particularly the same.
- The company faced a considerably low return once it didn't sell enough to break even.

2 Look at these different ways of comparing and contrasting information.

1 A is _____ bigger than B.
2 A is _____ the same as B.
3 A is _____ different from B.
4 A is _____ as big as B.
5 A is _____ the biggest.

Which of the following words can fit into each gap in 1–5 above?

considerably   virtually   exactly   somewhat   totally
completely   quite   about   slightly   a great deal
approximately   by far   not very

3 Look at the graph on page 80 and compare results from two points on the timeline using phrases from exercise 2.

Example: In 2030, the carbon emissions of the power industry are predicted to be considerably higher than in 2050.

4 Look at the mistakes below about the graph on page 80 and correct them. Some of the mistakes are language mistakes and some are about the content of the graph.
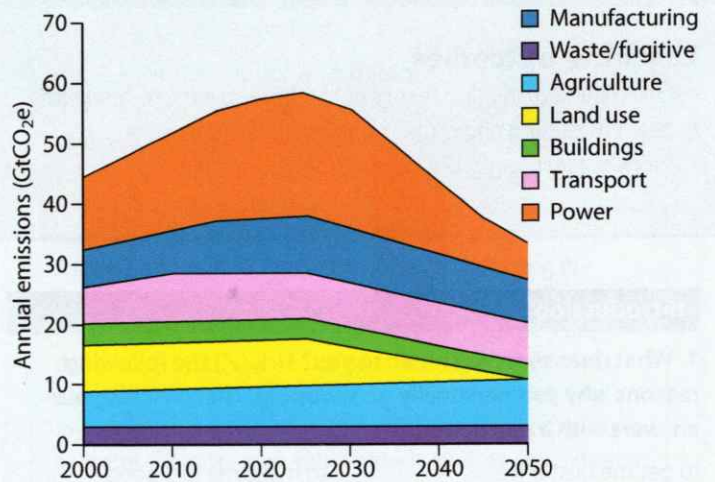
1 The considerably biggest producer of carbon is power.
2 The power industry produces exactly more CO_2 than other industries.
3 The building industry is unique in reducing its carbon emissions over the 50-year period.
4 In 2020, the power industry will have the highest CO_2 emissions. On the other hand, it will have greatly increased compared to 2000.

5 Read these incorrect comparisons of trends describing the graph on page 80, and correct them.

1 In the graph, CO_2 emissions in the waste industry rise and then fall over the 50-year period, whereas they fall steadily in the power industry.
2 Overall, CO_2 emissions gradually increase from 2000 to 2040 in both the agricultural and the power industries.
3 Both the agricultural and manufacturing industries' emissions peak at around 2025, and then decline steadily.

The graph below shows the predicted effects of technological advances in helping to solve the problem of carbon emissions across major industries. Such advances could include electric vehicles and cheap forms of renewable power, e.g. solar or marine power.

Evolution of emissions by major industrial category for Technology scenario

Legend:
- Manufacturing
- Waste/fugitive
- Agriculture
- Land use
- Buildings
- Transport
- Power

Y-axis: Annual emissions ($GtCO_2e$)
X-axis: 2000, 2010, 2020, 2030, 2040, 2050

Source: Carbon Trust and Oxera analysis
$GtCO_2e$ = Global tonnes of CO_2 equivalent

Stage 1

Summarise the information by selecting and reporting the main features and make comparisons where relevant. You should write three paragraphs.

Paragraph 1: A general description of the graph
Paragraph 2: Explanation of what is in the graph, starting with comparisons of general trends, moving to comparisons of specific points
Paragraph 3: A one-sentence conclusion that summarises the general trend in the graph

Stage 2

In small groups, discuss whether your answers to exercise 3 in the Introduction have changed.