

PART THREE

NATURAL GAS



Natural gas is predominately made up of methane, a colourless and odourless gas. There are two main types of natural gas used in Australia—conventional natural gas and coal seam methane, alternatively termed coal seam gas. Conventional natural gas is found in underground reservoirs trapped in rock, often in association with oil. It may occur in onshore or offshore reservoirs. Coal seam methane is produced during the creation of coal from peat. The methane is adsorbed onto the surface of micropores in the coal. There are also a range of alternative renewable sources of methane, including biogas (landfill and sewage gas) and biomass, which includes wood, wood waste and sugarcane residue (bagasse). These renewable sources of gas comprise about 16 per cent of Australia's primary gas use.

NATURAL GAS

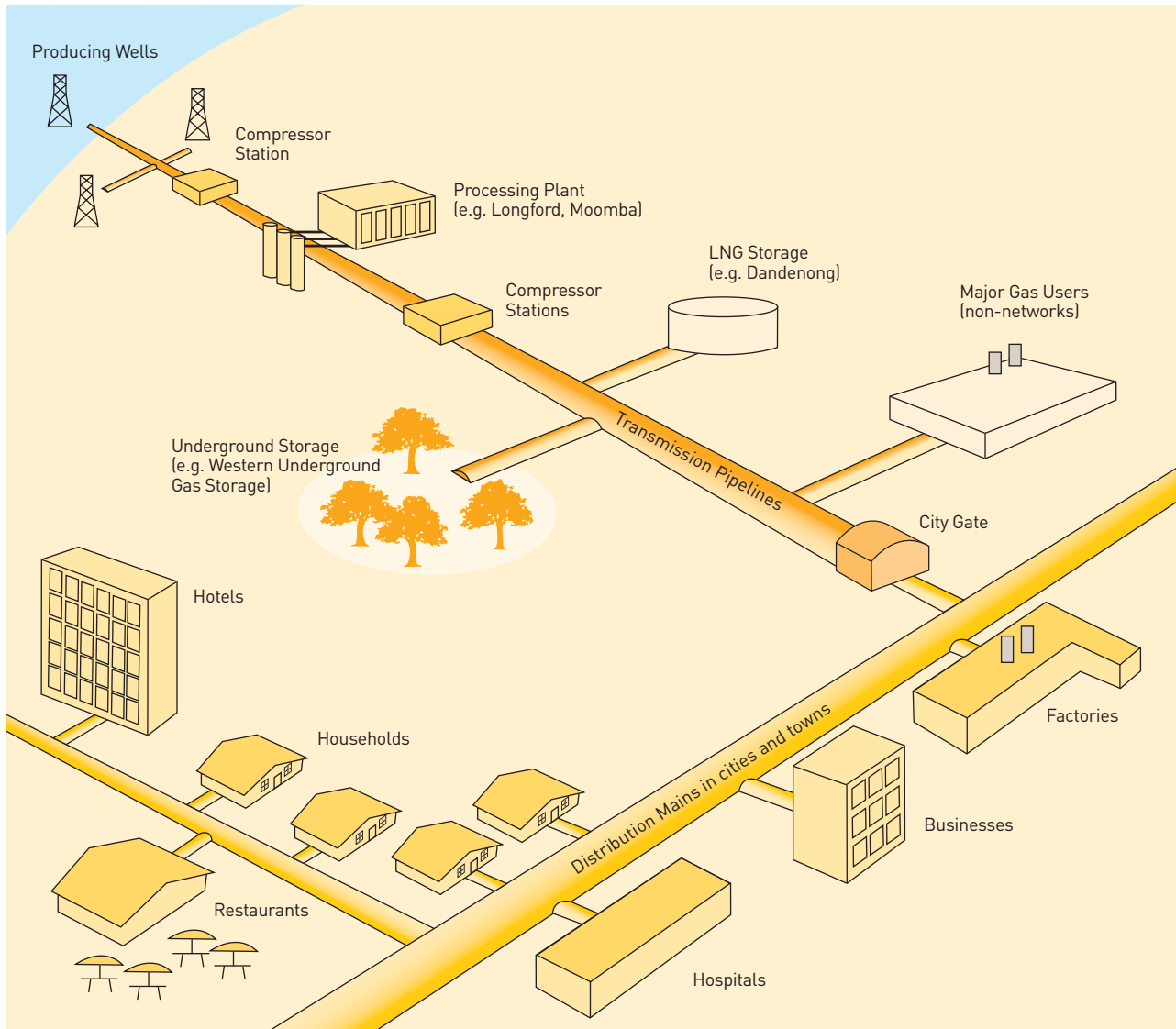
The supply chain for natural gas begins with exploration and development activity, which often involves geological surveying and the drilling of wells to find and verify the recoverable resource. At the commercialisation phase the extracted gas often requires processing to separate the methane from liquids and gases that may be present, and to remove any impurities, such as water and hydrogen sulphide.

The gas extracted from a well can be used on site as a fuel for electricity generation or other purposes. More commonly, however, gas fields and processing facilities are located some distance from the cities, towns and regional centres where the gas is consumed. High pressure *transmission* pipelines are used to transport natural gas from source over long distances. A network of *distribution* pipelines are then used to deliver gas from points along the transmission pipelines to industrial customers and from gate stations (or city gates) for the reticulation of gas in cities, towns and regional communities. The gate stations measure the natural gas leaving a transmission system for billing and gas balancing purposes and are used to reduce the pressure of the gas before it enters the distribution network.

Often retailers act as intermediaries in the supply chain. They enter into contracts for wholesale gas, transmission and distribution services and ‘package’ the services together for on-sale to industrial, commercial and residential consumers.

Unlike electricity, natural gas can be stored, usually in depleted gas reservoirs, or it can be converted to a liquefied form for storage in purpose-built facilities. Liquefied natural gas (LNG) is transported by ship to export markets. It is also possible to transport LNG by road or pipeline.

Part 3 of this report provides a chapter-by-chapter survey of each link in the supply chain. Chapter 8 considers gas exploration, production, wholesaling and trade. The focus is on natural gas sold for the domestic market. Chapters 9 and 10 provide data on the gas transmission and distribution sectors, while chapter 11 considers gas retailing.



Source: based on Australian Gas Association 2003 (as appearing in Productivity Commission, *Review of the gas access regime*, inquiry report no. 31, June 2004, p. 6).