



PART THREE

NATURAL GAS



Matthias Kulka (Corbis)

Natural gas is predominately made up of methane, a colourless and odourless gas. There are two main sources of natural gas in Australia. 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 gas is produced during the creation of coal from peat. The methane is adsorbed onto the surface of micropores in the coal. There are also renewable sources of methane, including biogas (landfill and sewage gas) and biomass, which includes wood, wood waste and sugarcane residue (bagasse). Renewable sources supply around 16 per cent of Australia's primary gas use.

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The natural gas supply chain begins with exploration and development activity, which may involve geological surveys and the drilling of wells. Exploration typically occurs in conjunction with the search for other hydrocarbon deposits, such as oil. At the commercialisation phase, the extracted gas is processed to separate the methane from the liquids and other gases that may be present, and to remove any impurities, such as water and hydrogen sulphide.

The gas extracted from a well may be used on site as a fuel for electricity generation or for 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 the source over long distances. A network of distribution pipelines then delivers gas from points along the transmission pipelines to industrial customers, and from gate stations (or city gates) to consumers in cities, towns and regional communities. 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.

Retailers act as intermediaries in the supply chain. They enter contracts for wholesale gas, transmission and distribution services, and 'package' the services for 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 is transported by ship to export markets. It is also possible to transport liquefied natural gas by road or pipeline.

Part three of this report provides a chapter-by-chapter survey of each link in the supply chain. Chapter 8 considers upstream gas markets, including exploration, production and wholesale trade. It discusses the supply of gas for domestic use and the export of liquefied natural gas. Chapters 9 and 10 provide data on the gas transmission and distribution sectors, and chapter 11 considers gas retailing.

Domestic gas supply chain

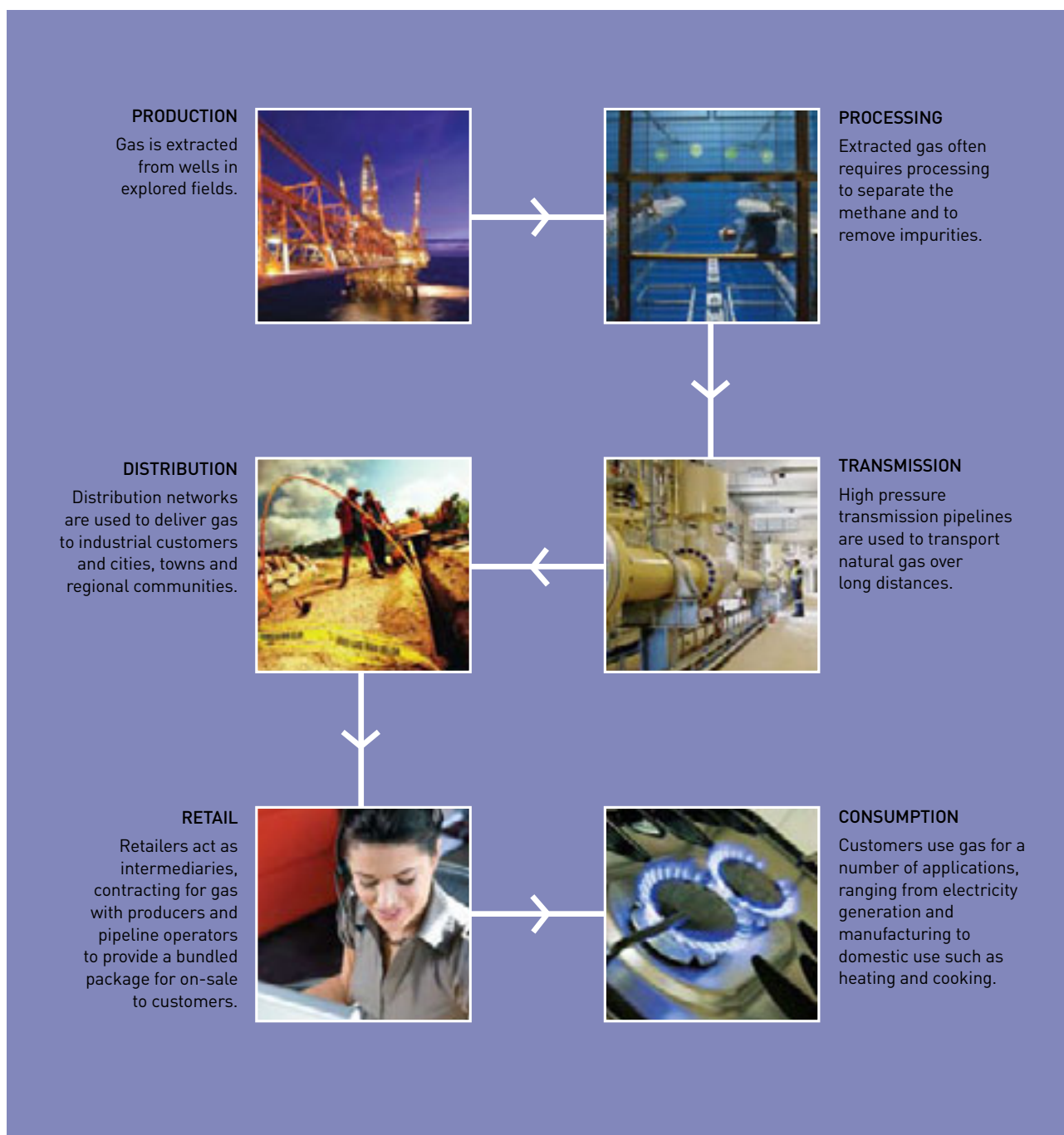


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