

# Chapter 9 Manufacturing

## Key Points

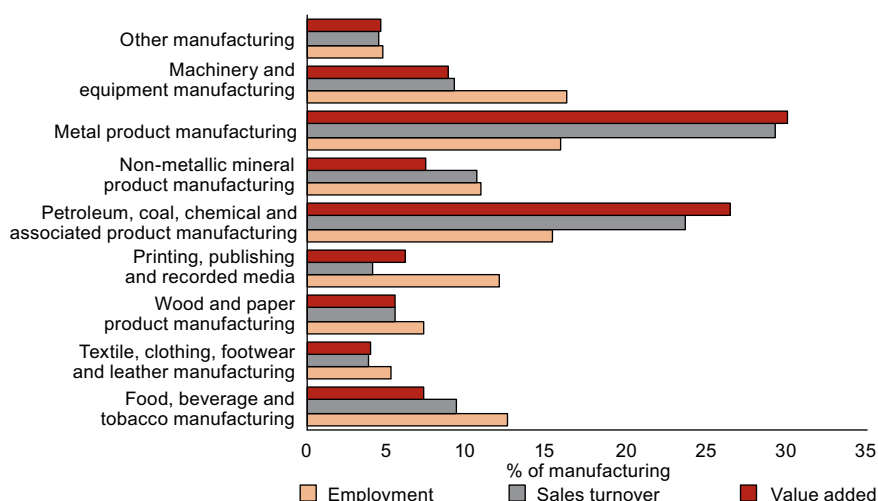
- » The manufacturing industry in the Territory is small in comparison to other states and is dominated by a small number of large companies.
- » In 2006-07, manufacturing activity accounted for 5.4 per cent of GSP (\$719 million) and 3.5 per cent of total employment.
- » Manufacturing production will continue to grow in 2007-08 with alumina and LNG production dominating Territory manufacturing.
- » In the short to medium term, growth prospects include the helium plant at Wickham Point, metals processing from the Browns Oxide mine at Batchelor and possible increased LNG production from the Sunrise gas field in the Timor Sea.
- » In the long term, prospects include Timor Sea energy production and a possible two-train, 8 million tonne per annum LNG development bringing gas onshore to Darwin from the Ichthys gas field in Western Australia.

The manufacturing industry in the Territory is small compared to other jurisdictions, accounting for 5.4 per cent of gross state product (GSP) in 2006-07 compared to 10 per cent nationally. Despite the relatively small size of the manufacturing industry in the Territory, it has grown in recent years, with large manufacturing projects moving towards full production. In 2006-07, the value of production from the Territory's manufacturing industry expanded by 2.3 per cent. About 4600 people are employed in the industry, accounting for 3.5 per cent of total employment in the Territory. The manufacturing base in the Territory is also narrow, reflecting the small local market and distance from other major markets. With the exception of export-focused alumina and liquefied natural gas (LNG) production, the majority of Territory manufacturing is for local consumption and includes the manufacture of products for Territory mining companies, printed material and food manufacturing.

## Composition

Chart 9.1 shows the proportions of value added, employment and sales turnover attributable to each sector of the manufacturing industry for the Territory. Value added is defined as the value of gross output at basic prices less the value of inputs used in manufacturing these goods.

Chart 9.1: Territory Manufacturing Sector Selected Indicators, 2005-06



Source: Northern Territory Treasury, ABS Cat. No. 8221.0

## Metal Products

Manufacturing in the Territory has been dominated by metal products manufacturing (primarily manufacturing bauxite to alumina), which typically accounts for about 30 per cent of total manufacturing value added, compared to about 19 per cent nationally, and about 29 per cent of total Territory manufacturing sales turnover in 2005-06 (Chart 9.1). Although it is much less labour intensive than most other manufacturing sectors, it accounts for about 16 per cent of Territory manufacturing employment due to its large size.

Production delays caused by engineering issues for the Alcan G3 refinery expansion hampered the expected ramp-up in production in 2006-07. Production of 1.7 million tonnes of alumina in 2006-07 represents a 2.7 per cent decrease on 2005-06 production. The value of production in 2006-07 is estimated to be \$483 million, \$22 million lower than 2005-06.

The Alcan expansion is expected to increase production to 3 million tonnes of alumina in 2007-08, increasing to 3.5 million tonnes in 2008-09.

The conversion of bauxite to alumina at Gove has accounted for the vast majority of metal manufacturing in the Territory in 2007-08. The construction of cobalt, nickel and copper manufacturing plants in recent times has seen other metal manufacturing making up nearly 10 per cent of the estimated value of metal manufacturing production.

The metal production sectors of the manufacturing industry also include sheet metal fabrication and the production of materials used in the construction industry. The relatively high value for metal products manufacturing value added has been boosted by commodity price increases over the past three years, with the outlook for 2008-09 remaining positive.

## Fuels and Chemicals

Fuels and chemicals manufacturing in the Territory has been growing and, with the completion of the Darwin LNG plant in 2005-06, accounts for about 26 per cent of total manufacturing value added, compared to 14 per cent nationally. This sector also accounts for 15 per cent of Territory manufacturing employment. The importance of this sector has been growing over the past few years as the Territory's gas-based processing infrastructure continues to develop due to increasing demand from China and increased exploration investment.

Production of LNG at Wickham Point began in February 2006, and has added significantly to the value of Territory manufacturing, producing an estimated 1.7 million tonnes of LNG in 2005-06. The plant is expected to produce 3.3 million tonnes per annum from 2006-07 onwards for export to Japan, and directly employ 80 to 100 permanent staff.

The renewable fuels facility at the Darwin Business Park at East Arm exported its first shipment in early August 2007, shipping 8.8 million litres of bio-diesel to the United States. Problems with both price and availability of feedstock arose in 2007-08. In addition, deficiencies in the plant design combined with the feedstock problems to halt bio-diesel production. The Darwin plant has continued to refine crude glycerine to recover fixed costs. Its future is uncertain at this time.

## Machinery and Equipment

Machinery and equipment manufacturing accounts for about 9 per cent of manufacturing value added in the Northern Territory, compared to 20 per cent nationally. This sector is relatively labour intensive, accounting for about 16 per cent of Territory manufacturing employment.

Machine and equipment manufacturing in the Territory is focused on servicing the mining and defence sectors, in particular, producing tools and equipment for the

maintenance and development of the large defence and mining machinery used throughout the Territory.

The maintenance requirements of the large, and still increasing, defence presence has the potential to significantly impact on and increase the contribution of machinery and equipment manufacturing in the Territory.

## Outlook

Alumina production is forecast to reach production limits in 2008-09, with the expansion of Alcan's G3 refinery increasing production capacity from 3 million to 3.5 million tonnes per annum. Prior to the expansion of the Alcan facility, bauxite was both exported as a commodity and processed into alumina (for export). With the completion of the expansion to the refinery, Alcan now processes all the extracted bauxite into alumina, no longer exporting bauxite as a raw commodity.

BOC Limited will begin construction of a helium plant at Wickham Point in 2008-09. The plant, which will be the first in the southern hemisphere, will use feed-gas from the LNG plant and is estimated to produce 750 tonnes of helium per annum. Helium has many industrial uses including pressurizing and purging, welding cover gas, controlling atmospheres, leak detection and breathing mixtures. The helium is destined to supply both domestic and South East Asian markets.

In the medium to long term, the possibility of bringing more Timor Sea gas onshore offers significant manufacturing opportunities. The agreement between the Timor-Leste Government and the Commonwealth Government regarding the proportion of the Greater Sunrise field outside the Joint Petroleum Development Area (JPDA) concluded in February 2007, and has opened the door for the development of the Sunrise field.

Woodside Petroleum owns a 33.4 per cent share in the Sunrise field and announced in February 2008 that it was accelerating development of the Sunrise project, with a possible start date in late 2009. Production would then follow with the first LNG shipment estimated in 2013. The final investment decision as to how to develop the gas is expected to be made in 2008. Currently, three options are being considered. These include a tie-in to the existing production facilities at the Bayu-Undan project, a floating LNG plant (probably unlikely due to current limits in technology) and taking the gas onshore to Timor-Leste. The Timor-Leste Government is advocating for the gas to come onshore to Timor-Leste via a 180 kilometre pipeline. This, however, poses serious engineering challenges due to the 3300 metre sub-sea trench the pipeline would have to traverse. In addition, political instability adds another complication to this option, making Darwin the most likely destination for the LNG processing facility.

Other possible gas manufacturing projects include further production of LNG, or gas-based products such as methanol, ethane, ammonia/urea fertilisers and various petrochemicals. Timor Sea gas also has the potential to provide a cheap and efficient energy source for the manufacture of alumina, magnesium and other ore concentrates, and for the production of electricity that could advance local value-adding opportunities.

The construction of a \$450 million condensate processing facility at East Arm is another possible project in the medium term. The facility would source condensate from the Timor Sea and North West Shelf for the production of petroleum, diesel, liquid petroleum gas (LPG) and jet fuel.

Further increases in manufacturing production will occur in 2008-09 with the processing and refining of copper, cobalt and nickel at the Browns Oxide mine in Batchelor, which is expected to start production in the second quarter of 2008.

In addition, construction of a gold and copper processing plant at the Peko Tailings mine east of Tennant Creek is estimated to begin in the third quarter of 2008, with a cobalt plant scheduled to begin construction in the fourth quarter of 2008.

In the long term, there is the possibility of Inpex's two-train, 8 million tonne per annum LNG pipeline and processing development from the Ichthys gas field in Western Australia's Browse basin. On 28 February 2008, the Territory Government signed an agreement with Inpex giving the Japanese company permission to assess the viability of processing gas, sourced from Western Australia, in Darwin. Inpex is continuing to work closely with the Territory Government to facilitate production options and plant design at the prospective site at Middle Arm Peninsula. Further discussions regarding this option were held in Tokyo in March 2008 between the Territory Government and Inpex officials.