

2.0 Project Need and Benefits

2.1 Aluminium Industry

The global long-term growth for aluminium demand is forecast to be about 3% per annum (average aluminium production growth per annum in the 10 years to 2002 was about 3.9%). For every one additional tonne of aluminium demand, an equivalent two tonnes' supply of alumina is required. From a global perspective, a 3% annual growth in aluminium equates to a requirement of an additional 1.35 Mt alumina capacity each year.

Australia is the world's largest producer of bauxite (53 Mt/y) and alumina (16 Mt/y) and the fifth largest producer of aluminium metal (1.8 Mt/y).

There are 56 metal grade alumina refineries in the world. Australia is a major alumina producer with six refineries producing 30% of the world's capacity. Of the six alumina refineries, four are in Western Australia and one each in Queensland and the Northern Territory. A seventh refinery is currently under construction in Queensland.

The Australian Aluminium Council estimates that with a favourable investment climate the industry will increase its alumina and aluminium production capacity by at least 30% over the next decade. The size of the industry makes it the country's second largest exporter, behind the coal industry. In the past five years, Australia has had the world's fastest growing alumina and aluminium industry and this growth is forecast to continue.

The contribution of the industry to the Australian economy is substantial. Key direct economic contributions identified by the Australian Aluminium Council (2001-02 year) include:

- Direct employment of 17,780 workers;
- Wages and salaries paid of \$1.15 billion;
- Turnover valued at \$13.1 billion;
- Exports valued at just over \$8.4 billion; and
- Value added or gross product of \$5.6 billion.

There are many other indirect and less tangible benefits such as providing a base load that has enabled a number of major energy projects to proceed which has also benefited other industrial and household users.

The increased use of aluminium brings substantial energy and other benefits due to its special combination of properties. In the transport industry, aluminium's light weight and strength means fuel savings can be achieved, even allowing for the energy needed to originally form it. In the building industry, aluminium is frequently favoured because of its strength, resistance to corrosion, and long life in service.

The packaging industry uses aluminium because it is light weight and resistant to corrosion and other forms of attack. It forms an impermeable barrier to protect and preserve food and pharmaceutical products. The electrical industry uses aluminium for light weight, conductive cable. Manufacturing industries find it a very good material to form and machine. Furthermore, once aluminium is removed from service it is 100% recyclable using a small percentage of the original energy that went into its formation.

2.2 Project Need

The aluminium industry is characterised by decreasing long term prices, tight operating margins and strong competition. Technology and productivity gains have caused costs to fall in real terms and these benefits have been passed through to customers. However, refineries and smelters remain viable through continuous improvements and cost reductions.

Australia's comparative advantage in alumina is attributed to a combination of a skilled workforce, access to energy, and locally available bauxite. Nevertheless, global competition necessitates continual improvement in the Gove operation. The expansion will provide the opportunity to make a positive change in competitiveness and therefore support the longer-term viability and sustainability of the operations.

In recent years, Alcan has focused its bauxite and alumina interests around its Australian operations. By increasing its initial shareholding in the Gove refinery from 70% to 100%, Alcan has demonstrated its commitment to a long-term presence in Australia. This commitment is further underlined by its proposed expansion of Alcan Gove and shareholdings in the Queensland Alumina Refinery and Tomago aluminium smelter.

The Third Stage Expansion will enable Alcan Gove to achieve a 75% increase in production capacity without the high capital expense of developing a greenfield refinery. This will significantly increase the refinery's economies of scale which will enable it to remain viable and to maintain its international competitiveness.

2.3 Project Benefits

2.3.1 Social Benefits

Alcan Gove is a major partner in the local and regional community including the town of Nhulunbuy where a wide range of regional infrastructure and community services are maintained. The viability of the Gove operations is integral to maintaining and enhancing the quality of life of the region.

The company's relationship with local traditional owners, the Yolngu people, is built on trust and a shared vision for the future. An example of this partnership is the establishment of the successful YNOTS training school which promotes cultural understanding and equips young indigenous people with the skills necessary to join the workforce. The expansion will provide opportunities for the employment of YNOTS graduates.

Alcan Gove has an alliance contract with Yirrkala Business Enterprises (YBE), an Aboriginal owned and operated company, with an annual value in the order of \$8 million. The proposed expansion will create new and additional opportunities for local indigenous enterprises.

As part of its commitment to both the Aboriginal and non-Aboriginal local communities, Alcan Gove will continue to sponsor and support many events, activities and groups.

2.3.2 Environmental Benefits

The expansion will deliver a number of environmental benefits:

- Enhanced digestion technology will improve alumina extraction per tonne of bauxite by 10% and reduce residue produced per tonne of alumina by 25%;
- The liquor purification initiative will enable a 25% reduction in caustic consumption and a 75% reduction in soluble caustic waste per tonne of alumina;

- There will be an overall reduction in energy consumption of 4% per tonne of alumina;
- The waste water inventory reduction project will reduce the inventory of stored water in the Residue Disposal Area, and enable safe runoff to the marine environment;
- Until gas supply is secured to the refinery, a new fuel oil switching strategy (low sulfur/high sulfur) will improve management of air quality during periods of unfavourable weather conditions; and
- The conversion from fuel oil to gas will deliver further air quality and greenhouse improvements.
- Notwithstanding the above improvements in environmental efficiency, higher alumina production from the expansion will result in an overall increase in the consumption of raw materials and emission loads.

The impacts from this production increase are discussed in relevant sections of this EIS.

2.3.3 Economic Benefits

Alumina refining adds significant value to the bauxite ore. It has been estimated that refining increases its worth by a factor of 10. The wealth created by the industry is shared in many ways not the least of which is in wages to industry employees and to employees of other companies that provide it with goods and services.

Most of the wealth generated by the Australian aluminium industry comes from exports. In 2000, it generated export income of \$8.6 billion, a performance matched by few other industries. The industry's strong export performance reflects its international competitiveness and hence its positive impact on Australia's balance of payments.

The Gove operation is one of the largest industries in the Northern Territory and a major contributor to its economy. It is a capital intensive project with a replacement cost of approximately \$2.5 billion.

In 2000-01, the Gove refinery and mine added \$402 million to the Northern Territory Gross State Product. This was approximately 4.5% of the total and exceeded that of both the agricultural and manufacturing sectors.

Economic benefits from the expansion will include:

- Increase in exports from \$560 million to \$980 million per annum;
- Additional Gross State Product (GSP) to the Northern Territory economy of \$90 million per annum during construction and \$200 million per annum during the operational phase;
- Additional direct employment opportunities (about 1,200 peak construction and up to 120 operational phase);
- Estimated additional 350 indirect jobs during operations;
- Additional government payments through taxes of about \$62 million per annum; and
- Ongoing royalty payments.