

2. PROPOSAL JUSTIFICATION, BENEFITS AND ALTERNATIVES

2.1 THE ALUMINIUM INDUSTRY

World production of alumina is currently around 52 Mtpa, of which Australia produces approximately 33%. Alumina production from other areas of the world includes Latin America (22%), West Europe (12%), North America (11%), East/Central Europe (10%), and Asia (10%).

Metal-grade alumina demand is driven by primary aluminium production, which, in turn, is driven by global aluminium metal consumption. Aluminium metal consumption, and therefore demand, is expected to grow steadily for the foreseeable future, given reasonable levels of world economic growth, and taking increased aluminium recycling into account.

Aluminium products and components are used in aircraft, motor vehicles, beverage cans, building materials, chemicals, sports and recreation, and a wide variety of industrial and consumer applications around the world.

2.1.1 Alcoa's Participation in the World Alumina Market

Alcoa Inc is the world's leading producer and manager of primary aluminium, fabricated aluminium and alumina facilities, and is active in all major aspects of the industry. Alcoa serves the aerospace, automotive, packaging, building and construction, commercial transportation and industrial markets, bringing design, engineering, production and other capabilities of Alcoa's businesses to customers. In addition to aluminium products and components, Alcoa also markets consumer brands including Reynolds Wrap® foils and plastic wraps, Alcoa® wheels, and Baco® household wraps. Among its other businesses are vinyl siding, closures, fastening systems, precision castings, and electrical distribution systems for cars and trucks. The company has 131,000 employees in 43 countries and has been a member of the Dow Jones Industrial Average for 45 years and the Dow Jones Sustainability Indexes since 2001. More information can be found at www.alcoa.com

Alcoa's Australian operations include bauxite mines, alumina refineries and shipping terminals in Western Australia, an aluminium smelter at Point Henry (Victoria) and a power station at Anglesea (Victoria). Alcoa is the major shareholder and manager of the Portland alumina smelter in Victoria.

Alcoa operates three alumina refineries in Western Australia at Kwinana, Pinjarra and Wagerup. The Pinjarra refinery is one of the largest in the world with a capacity of 3.5 Mtpa. An efficiency upgrade is currently underway at Pinjarra, which will result in production rising to over 4 Mtpa. Wagerup has a current capacity of 2.6 Mtpa and Kwinana has a capacity of

2.1 Mtpa. Combined, the three refineries will have a production capacity of approximately 8.7 Mtpa.

Alcoa's mining and refining operations in Western Australia supply alumina to produce approximately 15% of the world's primary aluminium. With assets having a replacement value over A\$8 billion in Western Australia, the company directly employs nearly 3,800 people, and contributes around A\$1.1 billion each year to the State economy. Most of the alumina produced at the refineries is exported world-wide and generates sales revenues of nearly A\$2.2 billion per year.

Alcoa considers the life cycle environmental impact of its products over their entire lifetime, taking into consideration not only the manufacture and use of a product, but its disposal or recycling at the end of its useful life. An Alcoa subsidiary, Alcoa Australia Rolled Products, with operations in New South Wales and Victoria, is one of the largest purchasers and recyclers of scrap aluminium in the southern hemisphere.

2.2 PROPOSAL JUSTIFICATION

Aluminium metal consumption is expected to grow steadily for the foreseeable future, given reasonable levels of world economic growth, and after taking increased aluminium recycling into account. Alumina is the feedstock for aluminium smelters. As a low-cost alumina producer, with secure access to substantial bauxite reserves, Alcoa's Wagerup refinery is well positioned to capture a share of this expanding market opportunity and to further improve Alcoa's West Australian and global market competitiveness.

Wagerup refinery is one of the most advanced and efficient alumina refineries in the world. The Proposal will lead to further improvements in emission controls and efficiencies per kilogram of alumina produced.

2.3 PROPOSAL BENEFITS

There are a number of significant socio-economic as well as environmental benefits to be gained from the Proposal.

The Proposal will entail a capital expenditure of over A\$1.5 billion and is expected to earn approximately A\$17 billion over 30 years in new export revenues. The proposal will deliver substantial economic benefits to the region, the State of Western Australia and the Commonwealth of Australia. Implementation of the expansion program will increase production capacity from around 2.6 Mtpa to a total of 4.7 Mtpa, which equates to an 81% increase in current annual alumina capacity from the refinery. The Proposal is expected to increase the value of Western Australian alumina exports by over A\$550 million per year.

Direct economic benefits to the local community, State and the Peel and South West Regions will be delivered through increased Commonwealth and State royalties, 150 permanent Alcoa positions and 3,000 direct and indirect employment opportunities. It is estimated that the Proposal will generate around 1,500 new jobs in the Peel and South West Regions during the operational phase.

During the construction period, the workforce will peak at approximately 1,600 employees, which is the equivalent of around 500 full time jobs during the entire 3 year construction period. During 2003, Alcoa spent more than \$30 million with local businesses, including engineering and earthworks companies, medical services, sporting clubs, car dealers and contractors in Western Australia. Approval of the Proposal will lead to a further increase in spending in the local community, resulting in greater employment opportunities and returns for local businesses and increased support for partnership training programs and local youth opportunities.

Investment in production and increased efficiency is critical to securing a future for Alcoa's Western Australian operations. The global alumina market is highly competitive and the Western Australian refineries currently satisfy 15% of the global demand for alumina, while being cost competitive and highly reliable. This strategic position will only be maintained with ongoing efficiency improvements and periodic significant investments, such as expansion of the Wagerup refinery. Western Australia receives significant benefits, such as royalties, employment and export earnings through maintaining this competitive position.

Alcoa believes the Wagerup refinery is the most environmentally advanced alumina refinery in the world, containing modern equipment, enabling low emissions and high efficiency. Investment in the Wagerup refinery ensures that growing demand for alumina can be met, in part, by a refinery operating at the highest standard of emission controls and energy efficiency. On a global scale this represents a significant environmental advantage compared with some other expansion options.

2.4 ALTERNATIVES CONSIDERED

2.4.1 No Proposal Option

If the Proposal does not proceed, this will represent:

- a lost market opportunity;
- missed employment opportunities (direct and indirect);
- reduced economic growth in the Peel Region and the West Australian economy; and
- missed opportunity to further improve the environmental efficiency of the Wagerup refinery while increasing alumina production.

2.4.2 Proposal Alternative

The alternatives to the Proposal include:

- the establishment of a new alumina refinery in Western Australia;
- the expansion of other Alcoa alumina refineries within Western Australia; and
- expansion of an existing or construction of a new alumina refinery internationally.

The option for establishing a new refinery within Western Australia was not considered to be viable for the following reasons:

- It would require a duplication of facilities that already exist at Wagerup;
- Difficulty in finding a suitable site close to the existing bauxite reserves;
- A cleared area of approximately 1,050 hectares would be required for a new facility. Consisting of approximately 450 hectares for the refinery plus an additional 600 hectares for bauxite residue storage;
- A site would require sufficient separation distances from neighbouring properties to avoid potential conflicts between industry and other land uses;
- Environmental impacts that may be associated with a greenfields development include:
 - vegetation clearing
 - flora and fauna impacts
 - groundwater and surface water impacts
 - water supply
 - air and noise emissions
 - visual amenity
 - infrastructure requirements
- Increased costs associated with a greenfields site; and
- Potential for significant delays associated with site selection, approvals, design and construction phases.

Further assessment of a new refinery in Western Australia was not undertaken based on the above issues and Alcoa's desire not to duplicate facilities that already exist at Wagerup, therefore increasing the potential for environmental impacts and significantly increased costs.

Alcoa has two other refineries in Western Australia located at Pinjarra and Kwinana. Environmental approval was granted in February 2004 for an efficiency upgrade of the Pinjarra refinery from 3.5 Mtpa to over 4 Mtpa. Construction of the Pinjarra efficiency upgrade has commenced and is expected to be completed at the end of 2005. The Kwinana refinery has a current production capacity of 2.2.0 Mtpa and expansion of this facility to meet global demand would not offer the cost or environmental benefits associated with expansion of the Wagerup refinery.

Alcoa will continue to assess the viability of expanding capacity elsewhere in the world and the Wagerup expansion will need to compete against these projects for funding.

2.4.3 Proposed Wagerup Refinery Unit Three Project

Alcoa believes Wagerup to be the most environmentally advanced alumina refinery in the world and the most suitable site for expansion. The major drivers in selecting Wagerup refinery as the preferred option include the potential for job creation, economic growth and business opportunities in the region and wider economy, the economic feasibility of upgrading the existing refinery to meet market demands, as well as recognition that the Wagerup refinery possesses the most up-to-date technology and high energy efficiency, when compared to alumina refineries internationally.

Expansion of the Wagerup refinery will be contained within the existing refinery boundary and any expansion of the residue area will be on Alcoa's farmlands and in accordance with the LTRMS. The Proposal will result in an alumina production increase of approximately 80%, whilst not increasing impacts on residents from noise, particulate and odour emissions. This is achieved through a combination of improvements to existing environmental controls designed to manage higher production levels, new controls associated with new or upgraded equipment, dispersion and land management practices. The 80% increase in production capacity is achieved through strategic additions of plant equipment and improved efficiency from existing equipment, rather than a proportional (80%) increase in the size of the plant.