<table>
<thead>
<tr>
<th>NZAS KEY FACTS</th>
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<tbody>
<tr>
<td><strong>800</strong> full time employees and contractors</td>
</tr>
<tr>
<td><strong>328,269</strong> tonnes of saleable aluminium produced in 2014</td>
</tr>
<tr>
<td>Indirectly creates jobs for more than <strong>3,000</strong> people</td>
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<tr>
<td>Uses electricity equivalent to <strong>680,000</strong> households</td>
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<tr>
<td>Spends <strong>$450 million</strong> in New Zealand every year</td>
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<tr>
<td>Generates more than <strong>$600 million</strong> in export earnings annually</td>
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<td>1 of only <strong>2</strong> smelters producing ultra-high purity aluminium and the only one in the world producing it using electricity sourced from renewable energy</td>
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<td><strong>58%</strong> of the aluminium produced at Tiwai is exported to Japan</td>
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<tr>
<td>Aluminium is the <strong>3rd</strong> largest export from NZ to Japan, behind dairy and wood</td>
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<tr>
<td><strong>10 x</strong> more electricity from the national grid than the next biggest industrial user</td>
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NZAS is New Zealand’s only aluminium smelter and is located on Tiwai Peninsula, across the harbour from the community of Bluff.

New Zealand’s Aluminium Smelter is a joint venture operation owned by Pacific Aluminium (New Zealand) Limited (79.36%) and Sumitomo Chemical Company Limited (20.64%). Pacific Aluminium (New Zealand) Limited, is a wholly owned subsidiary of Rio Tinto Limited.

- NZAS metal is used in the world’s largest passenger airliners and in the manufacture of the Japanese Shinkansen high-speed train and very likely at least one of the smart devices in your home, handbag or pocket
- NZAS is the country’s largest energy user, consuming around 13% of NZ’s power. This electricity is contracted with Meridian Energy
- Since 2008, NZAS’ transmission costs have increased by $25 million per annum, despite the Smelter using 10% less electricity. Without reform this is expected to increase to $34 million by 2019
- Coupled with the high exchange rate, NZAS is continuing to face difficult business conditions
- NZAS has an industry-leading record of health and safety initiatives, with many external organisations visiting our site to learn about our safety journey
- Prudent investment means that NZAS remains a high-tech, world-class operation
- NZAS pays internationally high prices for electricity and transmission compared with other smelters outside China. Outside of China, only the regions of Eastern and Southern Europe have smelter power costs that come close to what NZAS pays
Sustainable development underpins everything we do at New Zealand’s Aluminium Smelter (NZAS). It means we consider health and safety, environmental, social and economic aspects in every decision and action we take.

Ultimately underpinning all these indicators, though, is commercial sustainability and this has been very challenging for the Smelter over recent years. This is because it is highly exposed to market volatility, both in terms of the currency exchange and the price of aluminium. NZAS faces this commercially uncompetitive position because it pays one of the highest prices for electricity and transmission paid by a smelter anywhere in the world.

This document summarises NZAS’ 2014 results as well as outlining plans for 2015, in the following key areas:

- Keeping our people safe and healthy
- Our people
- Energy and power
- Financial contribution to Southland and New Zealand
- Increasing value from every dollar
- Greenhouse gas emissions and environment
- Energy efficiency
- Social sustainability
- Market position

At NZAS, our values of courage, accountability and respect are very important in our everyday work. These values drive the way we operate. It is respect for others and caring for the people and the world in which we live that drives the engagement with our diverse workforce and our community. It is our passion for excellence that brings out the best in all of our people.
Pacific Aluminium (New Zealand) Limited reported underlying earnings of $56 million for 2014.

The upturn, due to an increase in the second half of 2014 in world prices for aluminium and market premiums; both of which have subsequently decreased in 2015, follows two years of consecutive underlying losses for the Smelter. The aluminium market also remains volatile, with average prices remaining at historical lows.

NZAS helped achieve this positive result by delivering $29 million in value through business improvement initiatives during the year, which is an outstanding result and testament to the great team we have at the Smelter.

NZAS produced 328,269 tonnes of saleable metal in 2014, which was 5,000 tonnes below plan, due to less reduction cells operating than projected.

Reduction Line 4 remains out of circuit. The potline was removed from circuit in April 2012 due to low metal prices and a high exchange rate. Market conditions continue to be closely monitored and restart options will be considered when economically viable. Any future decision about Line 4 will depend on the ability to secure internationally competitively priced power, including transmission pricing.

The team at NZAS are facing another challenging year in 2015 as we continue to face significant commercial factors beyond our control, as well as significant decisions under the power contract to supply the Smelter. Under the contract with Meridian Energy, NZAS has the option to terminate it on 1 July 2015, with effect from 1 January 2017, or to reduce the contract volume to 400 MW by 1 January 2017.

We are, however, committed to working as hard as we can to ensure that NZAS continues operating at 572 MW and remains a key sustaining element in the New Zealand economy.

If you would like to provide feedback on this report, please contact Andrea.Carson@pacificaluminium.com.au, or phone +64 3 218-5440.

Gretta Stephens
NZAS Chief Executive & General Manager

We had a 50% decrease in our rate of recordable injuries in 2014 with four recordable injuries compared with eight in 2013. This is still four too many and we continue to strive towards our goal of zero harm.
NZAS has a deep and long standing commitment to the safety of our people.

There are excellent support systems in place for employees and tens of millions of dollars have been spent on eliminating harm, or significantly reducing exposure.

Many people have worked at NZAS for decades. More than 150 of our current employees have been here for more than 30 years. This longevity of service is relatively unique in the New Zealand employment landscape and brings with it unique challenges, which we are endeavouring to meet and overcome.

We know that people who work in a heavy industry over such long periods of time may be exposed to different risks so we have active screening and early intervention programmes in place.

We have an on-site team of dedicated medical and safety professionals, including an internationally recognised occupational health doctor, a physiotherapist, two nurses and an occupational therapist, as well as a suite of screening and rehabilitation programmes.

Our health and safety teams regularly work with site leaders to further reduce risk in the workplace. We also keep WorkSafe NZ up to date on our progress, in particular on our actions to reduce the musculoskeletal impact of some types of work at NZAS.

As a heavy industry, we manage our risks proactively including ensuring there is an ongoing focus on task rotation.

**Focus for 2015**

**Health**
- Introduction of a musculoskeletal disease improvement plan which will focus on reducing musculoskeletal risks. The plan includes early intervention and reporting of discomfort, increased training and improvement to work practices
- Continue to embed the ‘Return to Work Recovery’ programme, which prevents aggravation of injury and illness when returning to work
- Development of Fitness for Work functional assessments to assist in early detection and treatment of illness and injury
- Continue focus on stress management by providing support to individuals
- Development of strategies to assist in protecting the health and wellbeing of an ageing workforce

**Safety**
- Implementation and training of the new Isolation and Energised Work standard
- Development of clear and sensible standards for cranes and lifting equipment
- Expand and consolidate the use of behavioural safety-based programmes such as ‘Brother’s Keeper’
- Expand and enhance Life Saving Control inspection and reporting systems
- Further develop Health, Safety & Environment (HSE) governance systems enhancing the role of HSE representatives
- Development and implementation of further Process Safety management processes
- Prepare NZAS HSE systems and processes for the pending implementation of the new HSW Act
We are very proud of our safety journey at NZAS. In 1977 there were 197 LTIs. This number has reduced dramatically as a result of our safety initiatives. In 2014 only one person suffered an LTI. However, this is still one person too many and we continue to strive towards achieving our goal of zero.
Together we are working as hard as we can to remain a vibrant part of our nation’s economy.

We have a loyal and skilled workforce of highly trained employees with the average length of service being 17 years. We want NZAS to remain a great place to work and to be an employer of choice within the Southland region.

We have proudly employed generations of the same families and supported our employees’ ambitions for their children to attend tertiary education institutions outside Southland with scholarships provided by NZAS.

While overall employee turnover was low in 2014, we continue to experience difficulty in recruiting experienced electrical and mechanical tradespeople to fill vacancies. This is a result of the high demand for these skills in the local market.

**2014 EMPLOYMENT FACTS**

| Number of Permanent Full Time Equivalent (FTE) Employees (As at 31 December) | 677.7* |
| Number of FTE Contractors (As at 31 December) | 127.1** |

**DIVERSITY**

| Males | 93.4% |
| females | 6.6% |

**EMPLOYEE TURNOVER**

| 5.7% |

**$79.6 MILLION WAGES AND BENEFITS PAID**

* Excludes 2014 summer vacation students
** Excludes capital contractors

### Plans for our people in 2015

Continue to improve employee engagement through:

- Increasing the level and visibility of employee consultation on policy changes and improvement ideas
- Continuation of activities to enhance the social interaction between employees
- Effective communication
- Enhancing leadership skills, including Leader’s Fundamental training focusing on ‘Motivating and Recognising People’ and ‘Coaching for Performance’
As a major business in New Zealand, NZAS makes significant contributions not only to the Southland region, but to the whole country.

The Smelter earns more than 2% of New Zealand’s export income year after year.

Despite facing significant economic headwinds, it is critical that we maintain NZAS as an efficient operation while continuing our cost reduction programme.

NZAS completed a number of significant mid-life refurbishment projects between 2009 and 2012, which included two new transformers, the ship unloader and a Carbon Bake furnace. In 2013, capital investment was sharply reduced due to the poor economic situation NZAS faced. Capital investment projects started in 2014 included the replacement of the Carbon Bake firing and control system, rectiformer replacement and the completion of a third transformer replacement.
2014 PAYMENTS TO SUPPLIERS
(EXCLUDING CAPITAL PROJECT EXPENDITURE)

NATIONAL
$383 MILLION
LOCAL
$47 MILLION

ECONOMIC CONTRIBUTION

GDP BENEFIT TO SOUTHLAND REGION*
$525 MILLION OR 10.5%

SOUTHLAND JOBS SUPPORTED BY NZAS*
3,200 JOBS

PERCENTAGE OF NEW ZEALAND’S EXPORTS
2.2%

* Venture Southland and Infometrics conducted an economic and social impact study of NZAS on the Southland economy in 2012
During the year, $29 million in savings were delivered through business improvement initiatives, with significant contributions from the following:

- Continued implementation of copper-cored cathode collector bars into new reduction cells
- Improvement of power efficiency in reduction cells
- Increased manufacture and sales of ultra-high purity, billet and block aluminium product
- Increased processing and sales of cold tapped bath (electrolyte)
- Prevention of early cell failures
- Reduction of power used in the fume scrubbing plant

A significant safety improvement was realised with the implementation of mechanised aluminium fluoride (AlF₃) delivery to Reduction Line 3 cells. This has eliminated a significant manual handling task and resulted in cost savings through more efficient packaging.

Work with McKinsey & Company, a global management consultant firm, resulted in restructuring the way improvement projects are managed. Fundamental to the success has been to reduce the number of projects to a ‘critical few’ which can be more quickly and successfully brought to completion. Tools have been adopted to focus on the highest value opportunities, develop clear and immediate next steps and have effective fact-based performance discussions.
The rate at which NZAS emitted greenhouse gases increased in 2014 when compared to 2013 due to process changes to produce consistent levels of high purity metal. Increased instability experienced in cell operation during most of the year saw perfluorocarbon (PFC) emissions increase, which affected the overall emission rate. Cell instability created a higher than average number of Anode Effects, which increased PFC emissions. It must be noted that CO₂-e/t Al has also increased since the April 2012 curtailment of Line 4 which is a more efficient reduction cell technology.

Fluoride is scrubbed from the exhaust gas stream using dry scrubbers – the Smelter’s main emission control equipment – where dust particles and fluoride gases are removed from reduction cell emissions. NZAS has reduced its fluoride emissions by more than 13 times since dry scrubbers were introduced in 1996.

In 2014, the fluoride emission rate was in the normal range but slightly higher than 2013 due to the increased number of reduction cells replaced. When a cell is replaced, it creates more fluoride emissions initially until process stability is achieved. However the average rate of 0.70kgF/t Al was well under the plan of 0.75kg/t Al. Fluoride performance is related to the efficiency of the dry scrubbers and the performance of cells in the reduction lines.

One Category 2 incident was recorded in 2014:
The East(W) Reclaim dust collector exceeded the 250mg/m³ limit due to faulty dust collector bags. The equipment was shut down and the faulty bags were replaced.

Environmental incident definitions
Category 1 – Minor. Near source confined and promptly reversible impact
Category 2 – Medium. Near source confined and short-term reversible impact
Category 3 – Serious. Near source confined and medium-term recovery impact
Category 4 – Major. Impact that is unconfined and requiring long-term recovery, leaving residual damage
Category 5 – Catastrophic. Impact that is widespread, unconfined and requiring long-term recovery, leaving major residual damage
Aluminium smelters consume significant amounts of energy, particularly electricity.

Energy is a significant proportion of our cost at NZAS and energy efficiency is always a priority. We constantly strive to achieve improvements on site as we seek to gain as much value as possible.

Some of the major energy efficiency projects can be found in the ‘Increasing value from every dollar’ section.

Lesser savings are just as important as major ones. We are currently working with the Energy Efficiency Conservation Authority to identify potential energy saving and emission reduction projects. Some of the projects being looked at include vehicle fleet management and fuel efficiency, ultrasonic detection for compressed air leakage and options for using LED lights in our production areas.

Total energy efficiency is made up of power, anode and fuel consumption, and is affected by the number of reduction cells in circuit, the cell technology used and the anode baking process in Carbon. In 2014, slightly fewer cells were in circuit compared to 2013 due to high cell failures, which resulted in decreased power efficiency.
In 2014, NZAS was involved in several major community partnerships/sponsorships including:

- **Kākāpō Recovery Programme** – NZAS has been the major sponsor for 25 years and has committed over $4.5 million and 1,100 days of employee volunteer time. We are proud to have helped save one of our most vulnerable neighbours. Kākāpō are a taonga species (culturally valued) for Ngāi Tahu.
- **Naming sponsor of the Bluff Coastguard rescue vessel ‘NZAS Rescue’** – all Southlanders have been brought up with a love of the water and our employees are no exception. NZAS has been a loyal supporter of our local coastguard for more than 10 years.
- **NZAS Southland Science & Technology Fair** – NZAS has been the major supporter for many years with large numbers of employees assisting with judging and also being on the organising committee. We are very happy to see the profile of science being raised in the community.
- **Foundation for Youth Development Southland (FYD)** – NZAS has been a sponsor of FYD since its inception in 2004. Our funding goes toward the Kiwi Can programme which is a life skills and values programme designed for primary and intermediate students in low decile schools.
- **Southland Girls’ High School education partnership** – in 2014 we celebrated the seventh year of the programme with 33 students having participated to date, and at least 13 girls going on to study engineering at university. The aim of the partnership is to encourage females into industry, particularly into engineering and science careers. We are very proud that a number of former students have graduated from engineering school.

NZAS views its relationships with its local community as fundamental to its success.

**Community focus for 2015:**

- Continue our sponsorship and in-kind support of Kākāpō Recovery until the current Kākāpō Recovery partnership agreement expires on 31 December 2015. A final decision on whether or not NZAS will continue this partnership will be made later in the year.
- Continue to support active partnerships including Southland Girls’ High School education partnership and the Southland Science and Technology Fair.
One major community contribution is included: $200,000 Kākāpō Recovery sponsorship

2014 COMMUNITY CONTRIBUTIONS – TOTAL $243,348

ENVIRONMENT
$201,000

EDUCATION
$30,200

RECREATION
$1,700

HEALTH
$10,000

OTHER
$448
NZAS produces the highest purity aluminium in the world.

Our high purity aluminium is used in the high end electronics industry.

### NZAS PRODUCTION – 2014 ACTUAL (TONNES)

<table>
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<tr>
<th>Product Type</th>
<th>Tonnage</th>
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<tr>
<td>High Purity Ingot</td>
<td>118,762</td>
</tr>
<tr>
<td>Rolling Block</td>
<td>46,931</td>
</tr>
<tr>
<td>Other Value Added</td>
<td>27,811</td>
</tr>
<tr>
<td>Billet</td>
<td>85,405</td>
</tr>
<tr>
<td>Foundry Ingot</td>
<td>13,339</td>
</tr>
<tr>
<td>Standard Purity Ingot</td>
<td>36,022</td>
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</tbody>
</table>

### SALEABLE METAL

<table>
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<tr>
<th>Description</th>
<th>Tonnage</th>
</tr>
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<tbody>
<tr>
<td>Saleable Metal</td>
<td>328,269</td>
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</tbody>
</table>

### PERCENT VALUE ADDED

- **Value Added**: 89%

### EXTRUSION SCRAP REPROCESSED

- **Tonnes**: 3,267
2014 NZAS MARKET

- **USA & CANADA**: 3%
- **EUROPE**: 15%
- **JAPAN**: 58%
- **KOREA**: 10%
- **OTHER**: 6%
- **NZ**: 8%

2014 PRODUCT PROFILE

- Standard purity ingot
- Billet
- Rolling block
- Foundry ingot
- High purity ingot
- Other value added
- Other value added

NUMBER OF MAJOR CUSTOMER CLAIMS

- 2010: 0
- 2011: 1
- 2012: 3
- 2013: 4
- 2014: 0

During 2014, no major customer claims were received.
If you have any questions or would like to provide feedback on the NZAS 2014 Sustainable Development Report, please contact:

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