



AUSTPAC RESOURCES N.L.  
ACN 002 264 057

Level 3  
62 Pitt Street  
SYDNEY NSW 2000  
GPO Box 5297  
SYDNEY NSW 2001  
Telephone: (+61 2) 9252 2599  
Facsimile: (+61 2) 9252 8299  
Email: [apgtio2@ozemail.com.au](mailto:apgtio2@ozemail.com.au)  
[www.austpacresources.com](http://www.austpacresources.com)

24 November 2016

The Manager  
Company Announcements  
Australian Stock Exchange Limited  
Exchange Centre  
Level 6  
20 Bridge Street  
SYDNEY NSW 2000

Dear Sir/Madam

**RE: AUSTPAC RESOURCES N.L.**  
**ANNUAL GENERAL MEETING TO BE HELD ON 24 NOVEMBER 2016**  
**MANAGING DIRECTORS PRESENTATION**

We are pleased to provide the presentation of the Managing Director to the Annual General Meeting of Austpac Resources N.L. to be held on 24 November 2016.

Yours faithfully

N.J. Gaston  
Company Secretary

enc



**Annual General Meeting**  
**24 November 2016**

**Presentation by**  
**M.J. Turbott**  
**Managing Director**

# Disclaimer



This presentation is provided to you for information purposes only and should not be construed as and shall not form part of an offer or solicitation to buy or sell any securities or derivatives. It should not be considered as an offer or invitation to subscribe for or purchase any securities in Austpac Resources NL or as an inducement to make an offer or invitation with respect to those securities. No agreement to subscribe for securities in Austpac Resources NL will be entered into on the basis of this presentation.

To the maximum extent permitted by applicable laws, Austpac Resources NL makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and take no responsibility and assume no responsibility for, the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission, from any information, statement or opinion contained in this presentation.

Certain statements may be made herein that use the words “estimate”, “project”, “intend”, “expect”, “believe” and similar expressions intended to identify forward-looking statements. These forward-looking statements involve known and unknown risks and uncertainties which could cause the actual results, performance or achievements of the Company to be materially different from those which may be expressed or implied by such statements, including, among others, risks or uncertainties associated with the development of the Company’s technology, the ability of the Company to protect its proprietary technology, the market for the Company’s products, government regulation, changes in tax and other laws, changes in competition and the loss of key personnel. For additional information regarding these and other risks and uncertainties associated with the Company’s business, reference is made to the Company’s reports filed from time to time with the Australian Securities and Investments Commission and ASX.

# **Austpac Activities 2015-2016**

- **Developments at the Newcastle Plant**
- **Opportunities in the USA**
- **ERMS SR Licence in Asia**



# Austpac's Newcastle Site





# **THE NEWCASTLE ZINC & IRON RECOVERY PLANT (NZIRP)**

**Improved technical capabilities**

- **Alternative process options**
- **Additional product options**

# Project History

- The **Newcastle Iron Recovery Plant (NIRP)** concept was conceived in 2011 and advanced through 2015 using a combination of funds from Kronos and Austpac – total \$20M spent to date
- **Objective:** to use Austpac's acid regeneration & iron reduction processes to commercially recycle steel mill oxide waste (mill scale & furnace dusts) and spent pickle liquor (SPL)
- NIRP was 85% complete at end of 2014; further \$6.8M sought. However the Plant was limited to processing **zinc-free** furnace dusts
- 2015 – Introduced electric induction furnace (EIF) to produce higher value pig iron; created potential to recover zinc from steel industry dusts
- The **Newcastle Zinc & Iron Recovery Plant (NZIRP)** concept was developed



# 2015-2016 Activities

- **Austpac's chloride-based process recovers Fe and HCl from mill scale and SPL. Recovering Zn from contaminated furnace dusts greatly improves Plant profitability**
- **Investigated feasibility of incorporating zinc chloride electrolysis into the NIRP flowsheet**
  - **Processes at early stage & required significant development**
  - **Other alternatives technically feasible but too expensive**
- **Developed a way to recover zinc from furnace dust using existing proven technology at NZIRP - two product options:**
  - **Zinc oxide – high grade feedstock for zinc refineries**
  - **Zinc metal – zinc sulfate electrolysis process used in Zn refineries**
- **Patent application lodged – 1<sup>st</sup> November 2016**



# Newcastle Zinc & Iron Recovery Plant

- **Global increase in recycling of steel**
- **More steel is galvanised (e.g. cars) and recycled**
- **Therefore more ZnO in contaminated waste dusts**
- **Existing processes to treat waste dusts only recover ZnO**
- **NZIRP process generates pig iron – taking advantage of the pelletised form of iron oxide, plus in-situ production of char, to enable conversion to pig iron**
- **NZIRP is able to process wide range of dusts**

# Steel Industry Furnace Dusts

## ➤ Primary steel making

➤ Blast furnace dusts                      Fe Oxide & 0-5% Zn

➤ BOS dusts                                      Fe Oxide & 2-15% Zn

## ➤ Secondary steel making – Electric Arc Furnaces (EAF)

Zn content in EAF dust (EAFD) depends upon feedstock:

➤ Zn coated steel scrap generates dusts with up to 40 % Zn

➤ Furnace dusts are a significant zinc & iron resource

➤ Waelz recycling process produces a zinc calcine (60% Zn) used in zinc refineries; does not recover Fe metal

# Electric Induction Furnace (EIF)

- Used in foundries worldwide; well-proven technology
- Off-gas rich in zinc; can be recovered as zinc oxide

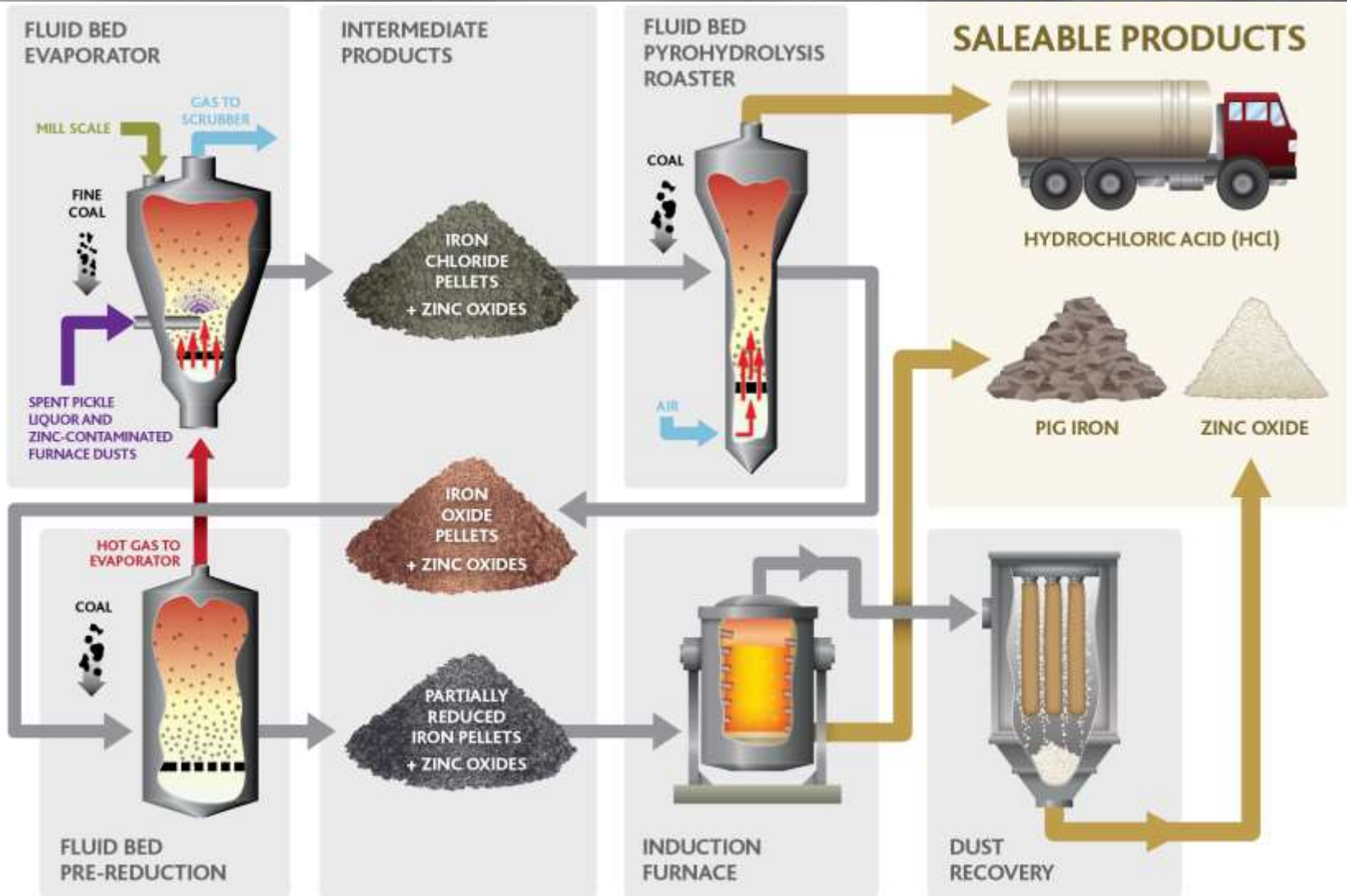


# Newcastle Zinc & Iron Recovery Plant

## NZIRP revised concept (2016):

- **Two-stage project will reduce the initial capital requirement and reduce process risk by using proven technology**
- **Stage 1 ZnO-Fe-HCl recovery**
  - **Use an EIF to produce pig iron from pre-reduced iron oxide pellets**
  - **Use a baghouse to recover zinc oxide from the EIF off-gases**
- **Stage 2 Zn-Fe-HCl recovery**
  - **Further process the zinc oxide by using conventional zinc sulfate electrolysis to produce zinc metal**

# NZIRP Stage 1- Process Flow Diagram

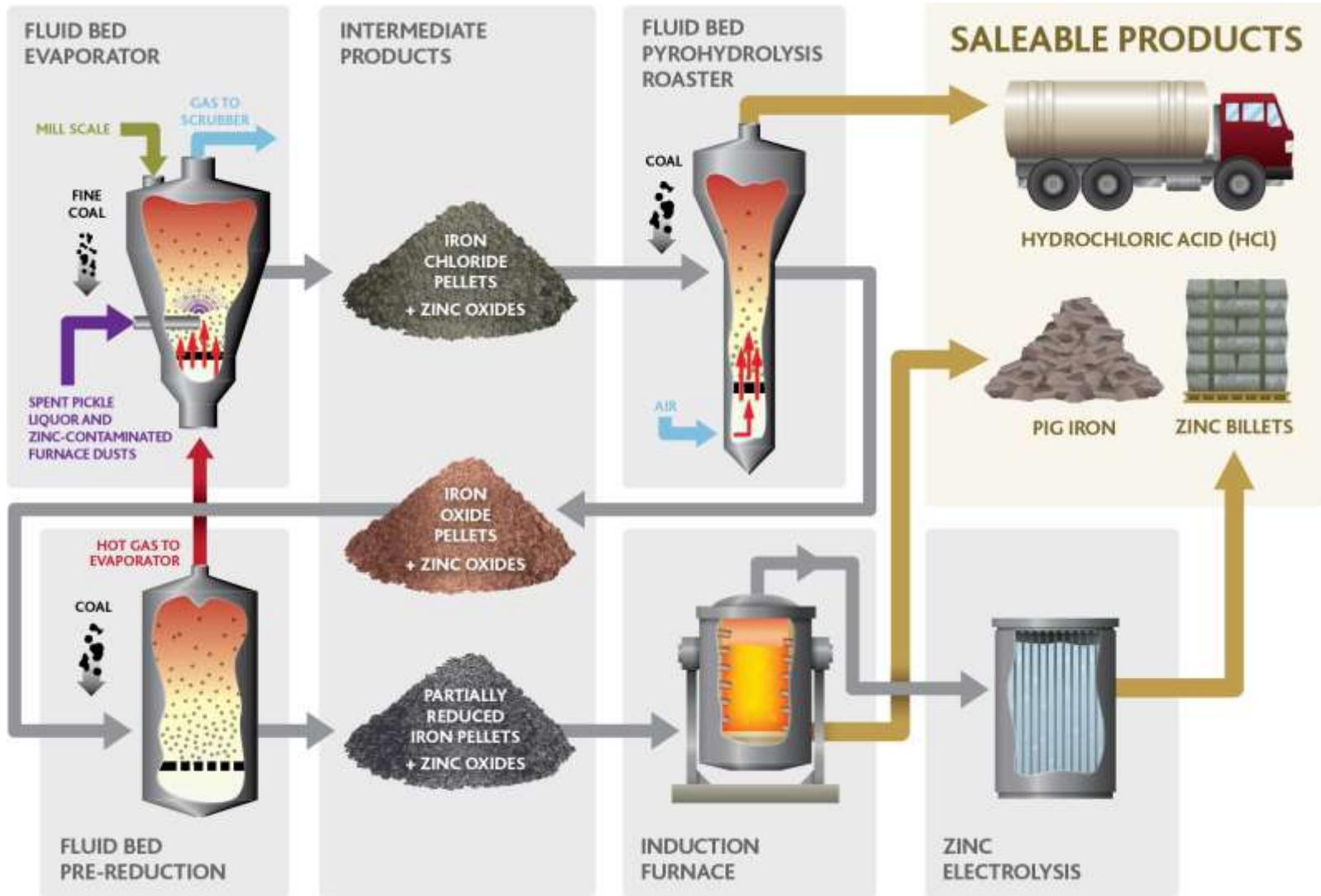




# NZIRP – Stage 1 Overview

- **Engineering & Design**                      **\$1.5 million**
- **Capex (Estimate – E&D study to confirm)**   **\$6.0    "**
- **Commissioning**                                      **\$1.5    "**
- **Total Plant**    **\$9.0    "**
  
- **Using Steel Mill & EAF dusts from NSW and SPL, the redesigned plant will have the capacity to produce:**
  - **Pig Iron**                                      **19,400 tonnes/year**
  - **Zinc Oxide**                                      **4,900    "**
  - **HCl (30%w/w)**                                      **14,200    "**

# NZIRP Stage 2 - Process Flow Diagram



# NZIRP – Stage 2 Overview

- **Engineering & Design**                      **\$ 0.5 million**
- **Capex & Commission (2016)**        **\$14.0    "**
- **Commissioning**                              **\$ 0.5    "**
- **Total Zn electrolysis section**        **\$15.0    "**
- **Production capacity:**
  - **Pig Iron**                                      **19,400 tonnes/year**
  - **Zinc metal**                                    **3,900        "**
  - **HCl (30%w/w)**                                **14,200        "**
- **Commences after Stage 1 is generating cash flow**

# Newcastle Zinc & Iron Recovery Plant

- **Staged approach to minimise Capex and risk**
- **Utilise majority of the existing structure & equipment**
- **Plant modification significantly increases capacity**
- **Complete detailed engineering before starting construction**

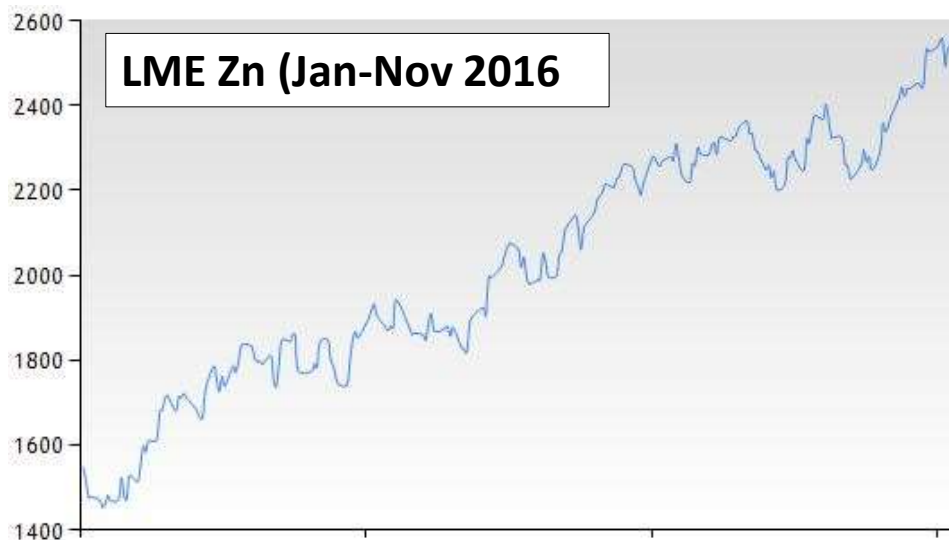
# NZIRP – Commodity Price Overview

➤ Pig Iron (upward)

A\$ 575/t

➤ Zinc (upward)

A\$ 3,500/t



➤ HCl (tight market)

A\$ 250/t

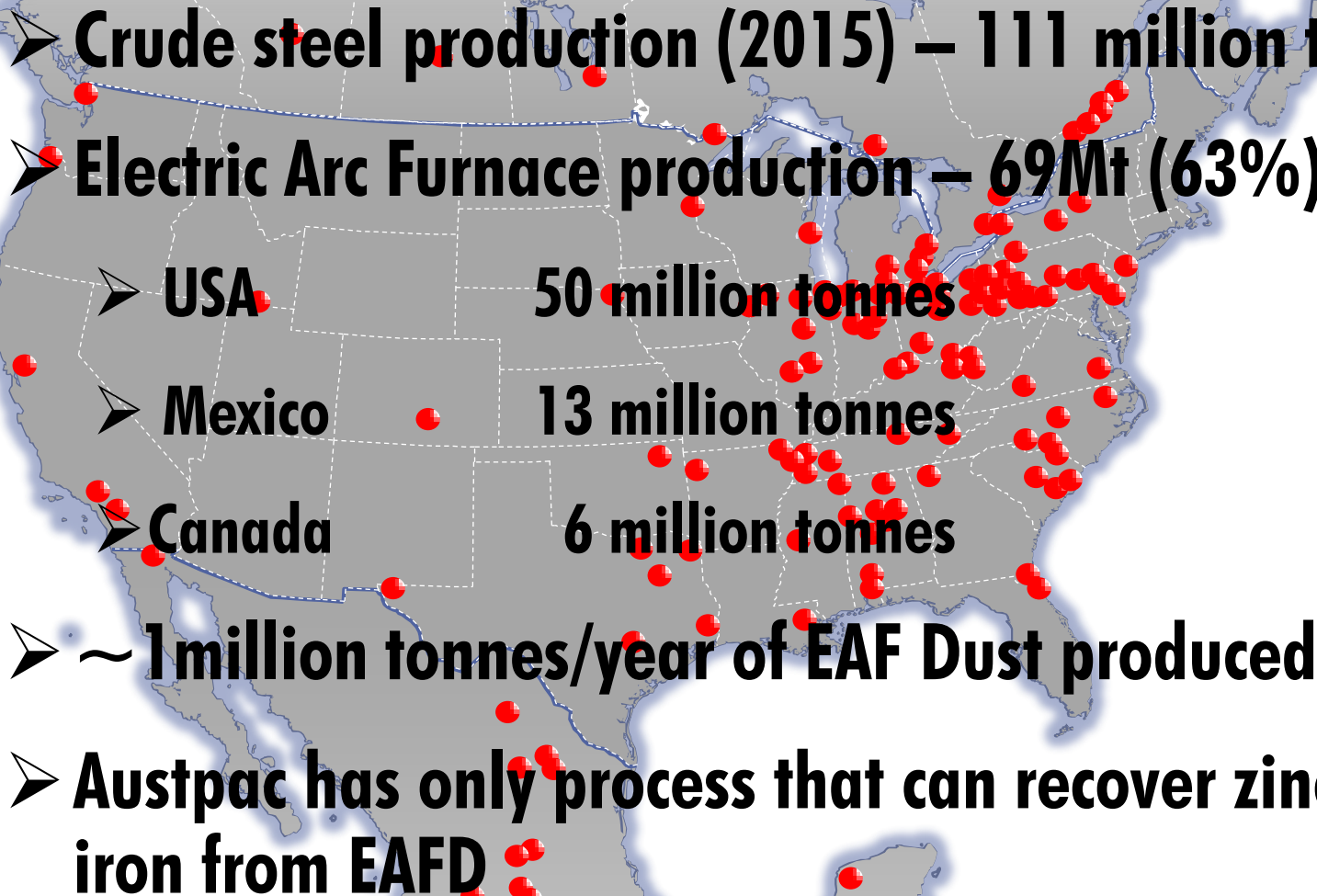
➤ Potential NZIRP Stage 1 Revenue > A\$ 20M/yr



# Newcastle Zinc & Iron Recovery Plant

- **Renewed interest from steel producers regarding the staged plant – dusts & SPL supply and ongoing support**
- **Continued investor interest and support**
- **Corporate finance negotiation continued**
- **Plant redesign created opportunity for further R&D tax concession refund – claim being processed**
- **Government support - NSW (EPA resource recovery grants) and Federal (Cooperative Research Centre grants)**

# Steel Plants in North America

- 
- Crude steel production (2015) – 111 million tonnes
  - Electric Arc Furnace production – 69Mt (63%)
    - USA 50 million tonnes
    - Mexico 13 million tonnes
    - Canada 6 million tonnes
  - ~ 1million tonnes/year of EAF Dust produced
  - Austpac has only process that can recover zinc and iron from EAFD

# Opportunity in North America

- **Contacted in early 2016 by a group who recognised the potential for recycling steel mill waste in the USA for Austpac's technology; confidentiality agreement signed**
- **In Q2/Q3 2016 jointly developed models for Zn-Fe-HCl plants in the north-eastern USA; attractive economics**
- **Slow progress made with steel companies during the year - more concerned about economic and political uncertainties**
- **Strong interest in steel companies since November election - potential for rejuvenation of the industry with fresh capital**
- **Positive economic outlook for USA steel from 2017 onwards**

# **ERMS Synrutile Licence**

- **Austpac was approached by a company with a significant ilmenite, zircon & rutile resource in Asia**
- **The company plans to use ERMS SR process to produce high grade synrutile from ilmenite**
- **The licence agreement to use Austpac's technology includes a scoping study followed a bankable feasibility study**
- **The company is finalising negotiations for project funding**
- **Project details to be released once agreement is signed**

# **Austpac – 2017 onwards**

- **Prove Austpac's technologies at the NZIRP**
- **Patent application for process lodged Nov 2016**
- **Staged plant development – ZnO then Zn metal; significantly reduces initial capital requirement**
- **USA potential – steel industry revival and funding**
- **ERMS SR licence concluded and project commences**



The logo for AUSTPAC features a stylized 'A' on the left, composed of a black triangle pointing right and a red triangle pointing left, meeting at a central point. To the right of the 'A', the word 'AUSTPAC' is written in large, bold, black, three-dimensional block letters. The letter 'T' has a small red square on its top bar. The background is a dark, textured grey.

**AUSTPAC**

The background of the lower half of the image is a photograph of a steel mill. Molten metal is being poured from a ladle into a mold, creating a bright, glowing stream of orange and yellow liquid. The surrounding environment is dark and industrial, with various pipes, structures, and lights visible.

**RECOVERING  
ZINC & IRON**

[www.austpacresources.com](http://www.austpacresources.com)