



**Welcome to the  
Annual General Meeting  
26 November 2015**



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**Presentation by**  
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**Managing Director**

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# Austpac's Newcastle Site



# Newcastle Iron Recovery Plant (2014)

- **NIRP was conceived in 2011 and advanced through 2014 using a combination of funds from Kronos and Austpac – Total \$18.5M**
- **Project Objective: to use Austpac's unique acid regeneration & iron reduction processes to commercially recycle iron oxide waste (mill scale & blast furnace dusts) and spent pickle liquor**
- **Construction of NIRP: 85% complete**
- **Design capacity when fully operational**
  - **~18,000 tpa saleable iron (iron chips or briquettes)**
  - **~18,000 tpa strong (25%w/w) hydrochloric acid**
- **At end of 2014 Austpac was seeking a further \$3.8M to complete and \$3.0M to commission NIRP**

# Newcastle Iron Recovery Plant

## Project funding options 2014-15

- Internal funding – shareholders
- Project finance – banks, etc.
- Corporate/Institutional support from outside Australia
  - USA, Europe
  - China, India, Asia

## Mid 2015 – Paradigm shift in Project

- ABR Zinc Recovery Process
- Involvement of Ixom

# ABR Process Development

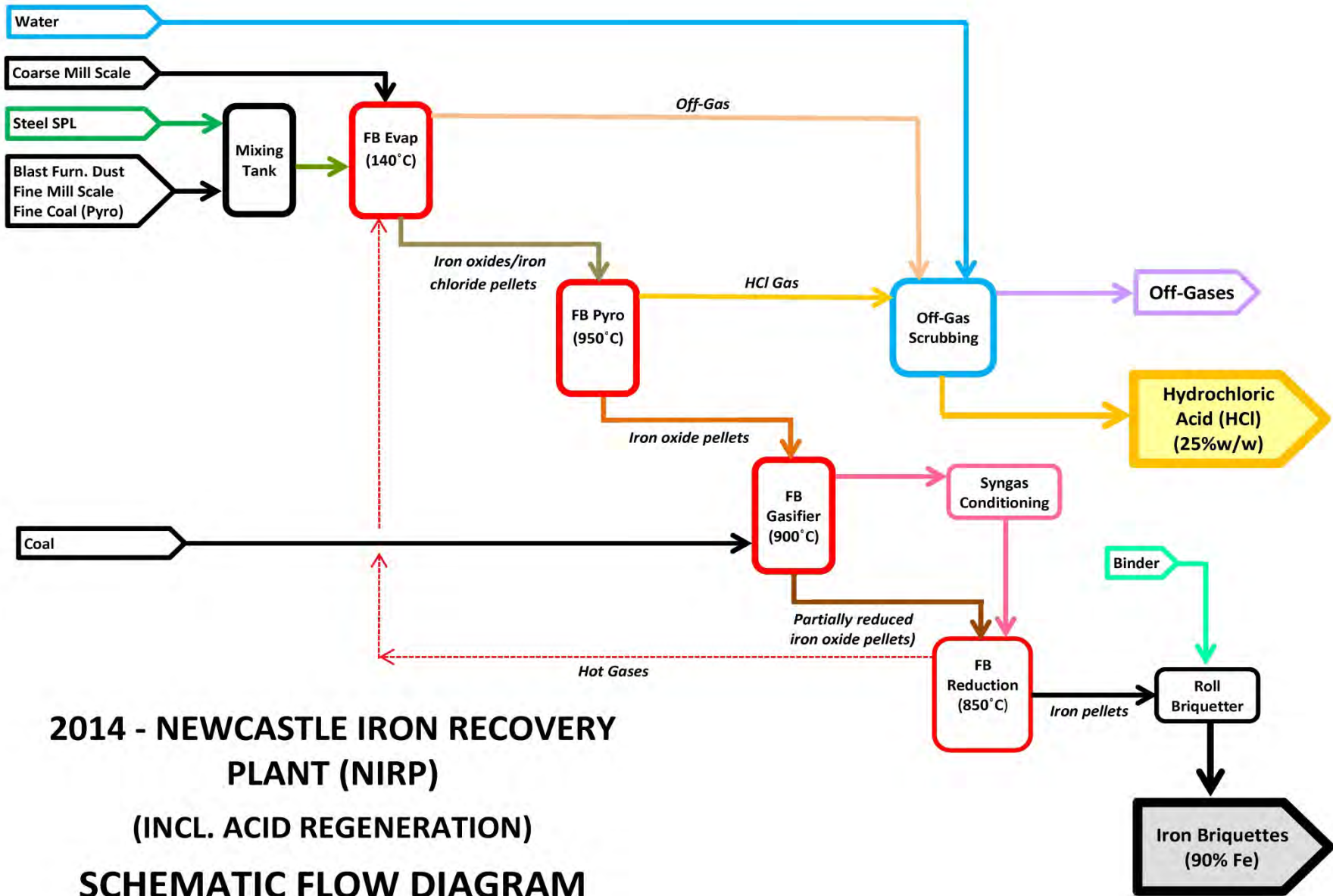
- **Private company based in Lismore, NSW**
- **Has facilities in Brisbane and Melbourne**
- **Has developed a range of industrial chemical processes for purification of water, recycling, regeneration, metals recovery**
- **Has a patented process to recover zinc metal and HCl from spent liquors containing zinc and iron chlorides (galvanising)**
- **Can be readily integrated with Austpac's iron reduction and acid regeneration processes**

# **Ixom Operations Pty Ltd**

- **Formerly Orica Chemicals, a division of Orica Australia**
- **Purchased by the Blackstone Group (USA) in March 2015 (\$750M)**
- **Manufactures and distributes chemicals for water, mining, agriculture, oil & gas, steel and dairy sectors**
- **Produces HCl for steel pickling for**
  - **Coating steel**
  - **Galvanising plants**
- **Ixom has followed Austpac's acid regeneration processes since 2010**

# Activities – 2<sup>nd</sup> & 3<sup>rd</sup> Quarter, 2015

- **Austpac recognised the potential to integrate ABR's zinc recovery process into the NIRP flowsheet**
- **Confirmed process suitability by technical exchange/review**
- **Introduced the integrated project concept to Ixom**
- **Agreed with Ixom and ABR to jointly assess the economics of an integrated plant to recover zinc, iron and HCl from steel and galvanising dusts and spent liquors**
- **Austpac undertook to produce capital and operating cost estimates for the integrated plant – now completed**



**2014 - NEWCASTLE IRON RECOVERY PLANT (NIRP)**  
**(INCL. ACID REGENERATION)**  
**SCHEMATIC FLOW DIAGRAM**

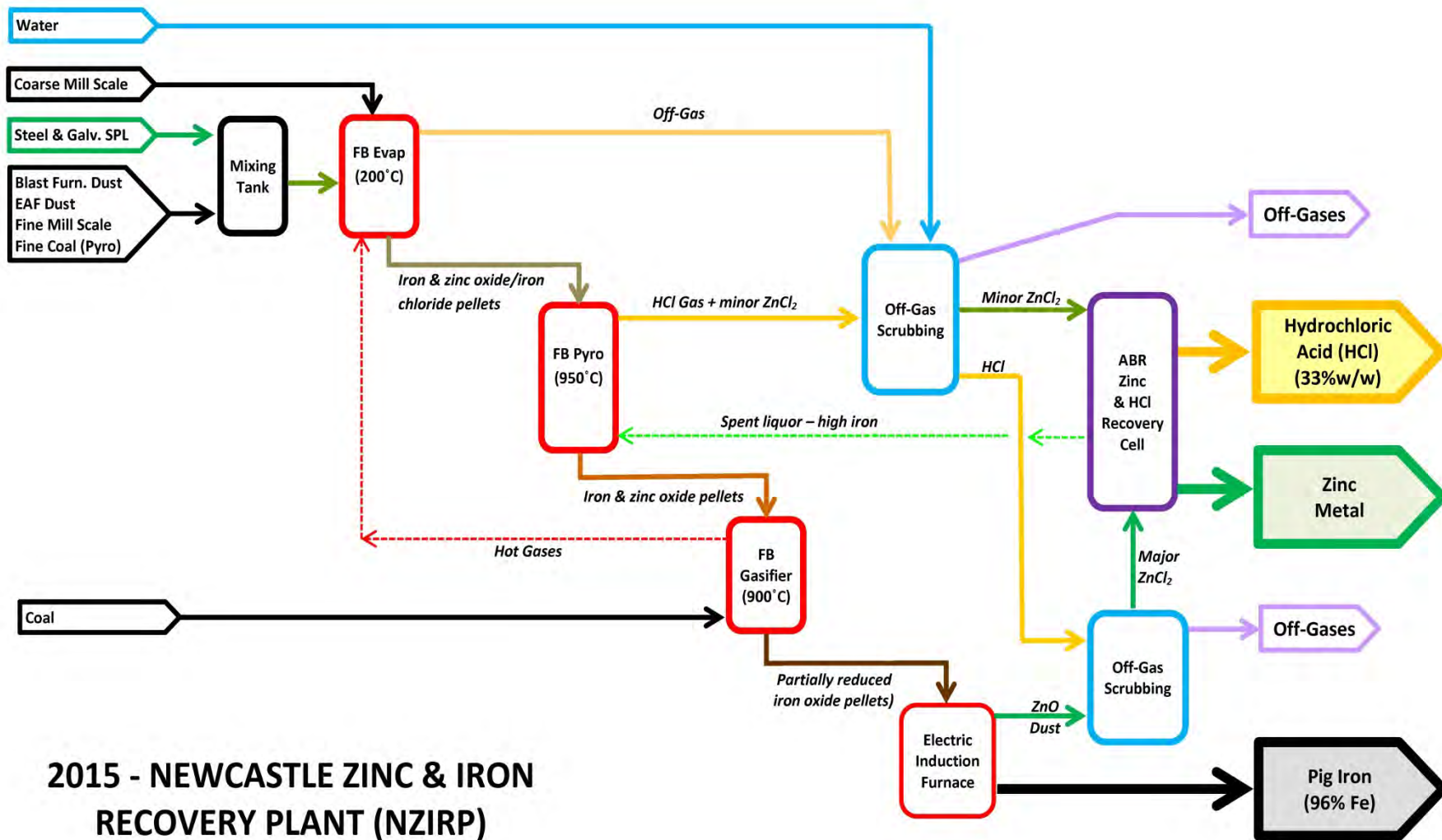
# Newcastle Iron Recovery Plant

- Feedstocks include mill scale, furnace dusts (low Zn), spent chloride liquors from steel pickling
- Products are iron briquettes and strong acid HCl
- Recycling steel industry waste is profitable
- Not designed to process dusts or liquors containing high Zn
  - Steel mini-mill dusts – EAF dust contains up to 40% Zn
  - Galvaniser SPL – contains up to 9% Zn
- Recovery of zinc from contaminated dusts would greatly improve plant profitability



**The solution is an integrated plant to produce pig iron, zinc metal & concentrated HCl.....**

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



**2015 - NEWCASTLE ZINC & IRON  
RECOVERY PLANT (NZIRP)  
(INCL. ACID REGENERATION)  
SCHEMATIC FLOW DIAGRAM**

# Electric Induction Furnace



## Inductotherm Equipment

### Furnaces

### Digital Control Power Supply



# ABR Zn & HCl Recovery



**Electrolytic Cell Module**

**Modular Semi-Permeable Membrane  
& Electrolysis Process**

**Power Supply & Control Module**



# Newcastle Zinc & Iron Recovery Plant

## Advantages

- **Simplifies flowsheet – syngas conditioning and briquetting sections no longer required**
- **Reduces process risk**
  - **Induction furnace technology proven (foundries)**
  - **ABR process is modular so easily scaled up**
- **Three valuable products**
  - **Pig iron (96% Fe)**
  - **High purity Zn (cathode or billets)**
  - **Concentrated HCl (33% w/w)**

# NZIRP – Preliminary Cost Estimate

➤ Annual production capacity	
➤ Pig iron	15,000 tonnes
➤ High purity Zn	3,700 "
➤ Concentrated HCl	6,600 "
➤ Additional capital cost	\$ 12.5M
➤ Commissioning	<u>2.0M</u>
➤ Total cost to production	<u>\$ 14.5M</u>

# Newcastle Zinc & Iron Recovery Plant

## Ixom Position

- **Undertaking complete review of project**
- **Reviewing**
  - **Austpac's cost estimates**
  - **Sources of steel & galvaniser SPL**
  - **Markets for HCl**
- **Review progressing well**
- **Austpac assisting to ensure speedy outcome**

# Newcastle Zinc & Iron Recovery Plant

## Corporate and Project Funding

1. Immediate – shareholder share purchase plan underway (\$0.5M to date)
2. Negotiating \$1.2M facility for ongoing working capital
3. Corporate finance - \$15M for NZIRP (Ixm)
4. Private project finance facility up to \$15M linked to the recovery of R&D expenditure

The logo for AUSTIPAC features a stylized 'A' on the left, composed of a black triangle pointing right and a red triangle pointing left, meeting at a point. To the right of the 'A' is the word 'AUSTIPAC' in large, bold, black, 3D block letters. The letter 'I' has a red square on its top bar. The background is a dark, textured grey.

**AUSTIPAC**

The background of the lower half of the image is a photograph of a steel mill. It shows a complex industrial structure with various pipes, beams, and machinery. In the center, there is a bright, glowing orange and yellow fire, likely from molten metal being processed. The overall lighting is dim, with the primary light source being the intense heat of the metal.

**RECOVERING  
ZINC & IRON**

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