



# GULF MANGANESE CORPORATION LIMITED

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Media Release  
25 May 2015

## Gulf Manganese – Smelter Moving Forward

**Gulf Manganese Corporation Limited (ASX: GMC)**, formally Gulf Minerals Corporation Limited, is pleased to reveal the findings from the **Timor Smelter Study** regarding the development of a smelting and sales marketing business to produce high carbon ferromanganese alloys in Timor, which is to be carried out through GMC's Indonesian-based subsidiary, PT Gulf Mangan Grup.

The financial analysis of the Study shows that the project has the potential to return an EDITDA of US \$623.8 million over a 20 year period supporting an estimated Net Present Value of US \$201.4 million, using an 8% discount factor.

**In commenting on the significance of the Study, Gulf Manganese Chairman, Graham Anderson said:**

"We are pleased to be able to provide shareholders with this Study as it further validates our early belief of the highly prospective nature of the project and our ability to stage a process of ultimately delivering a highly profitable outcome for all shareholders".

The project requires a modest start up capital investment of US \$67.5 million, which is staged over 4 years, plus working capital, and provides estimated returns supporting an internal rate of return of 45.6%.

**As described in the Study, GMC will develop a fully integrated manganese business that provides the following value propositions:**

- Sound project economics
- Operating costs at 80% industry average cost
- Highest quality ore supply (+50% Mn)
- Producing a premium manganese alloy (78%Mn)
- Established port and infrastructure
- Government full support, fiscal incentives of 10 year Tax Holiday
- Board/Management depth of manganese and Indonesian experience
- Global sales network
- Modest capital requirement
- Early cash flow from exporting ore
- Proposed Singapore listing
- Robust dividend policy with distribution of 50% of profits

A copy of the **Timor Smelter Study** is **attached** and will be officially released at the **Asia Mining Congress** held in **Singapore** this week.



Developing Premium Indonesian Manganese Alloys





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## About Gulf Manganese Corporation Limited

Gulf Manganese Corporation Limited is an Australian registered company (ACN 059 954 317) listed on the Australian Securities Exchange (ASX: GMC) with its head office in Perth, Western Australia.

The company is developing an ASEAN focused manganese ore and alloy producer. The facilities based in the West Timor capital Kupang will take advantage of the low cost of ore, labour and power being the majority of operating costs. Production will be a premium quality 78% ferromanganese alloy resulting from the unique qualities of the Indonesian high-grade low impurities manganese ore.

It is proposed to build 8 furnaces over a 4 year period for a total capital cost of US\$68m funded by an IPO on the Catalist board of the Singapore Stock Exchange raising \$US25m, modest project debt and operational cashflow.

The first two furnaces aim to be built during 2015, coming online January 2016, with a further two furnaces each year, 2017, 2018 and 2019. Each furnace has a capacity of 20,000 tonnes alloy production per year and on today's alloy prices producing US \$22m revenue.

During construction Gulf plans to be exporting 50% plus manganese ore to provide early cash flows and from 2015 the annual exports would commence at around 60,000 tonnes and increase by 30,000 tonnes per year to 180,000 tonnes in 2018. Ore will be sourced from West and East Timor together with other localities.

Value adding ores is strongly encouraged by the Indonesian Government to enrich the country's mineral endowment thereby enhancing the economy and creating employment.

All initiatives to value adding have full support from all levels of government and GMC will benefit from the Government's Financial Incentives Programme which effectively will result in a 10 year tax holiday, together with other tax exemptions.



Ore

Processing

Tapping

Alloy



Developing Premium Indonesian Manganese Alloys



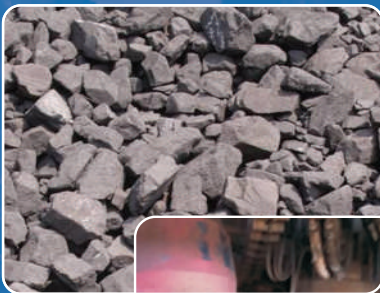


**GULF MANGANESE CORPORATION LIMITED**

ASX : GMC

Indonesian Manganese Ore and Alloy Developer

# Timor Smelter Study





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## Important Notice

This study document, its appendices and attachments have been prepared by Gulf Manganese Corporation Limited (GMC) for interested parties.

The document, appendices and attachments are marked Commercial in Confidence that identifies the information belongs to GMC and is of commercial value to GMC, apart from the references from Alloy Consult which are in the public domain. The document, appendices and attachments may not be copied without the written permission from GMC.

The valuations, forecasts, estimates, opinions and projection contained herein involve subjective judgement and analysis. The document, appendices and attachments contain forward looking statements and any estimates or projections are based upon the best judgement of GMC and on currently available information.





# 1 Summary

## Overview

The Gulf Manganese Corporation Limited (ASX: **GMC**) Timor Smelter Study (**Study**) examines the development of a ferromanganese (**FeMn**) smelting and sales business to produce high carbon ferromanganese alloys in Timor, Indonesia.

The project of building and operating a ferromanganese smelting and sales business will be carried out through GMC's subsidiary, the Indonesian incorporated, PT Gulf Mangan Grup.

### Highlights:

- GMC is an Australian listed company with skilled Directors and Management
- GMC will develop a manganese smelter in Indonesia utilising latest technology processes
- GMC will produce premium ferromanganese alloy
- GMC may toll treat other miner's ore
- Operating costs will be 80% of industry average\*
- Capital Costs US\$67.5 million spread over 4 years
- Project funding by equity, debt and cash flow
- Early cash flow during construction
- Government support, assistance and tax benefits
- Dual listing on the Catalist Board Singapore Exchange
- Robust dividend policy with 50% of profits to be distributed

\*Alloy Consult ([www.alloyconsult.com](http://www.alloyconsult.com)) advise the average product-weight cash costs for HCFMn last 5 years is US\$1,042/tonne.

The financial analysis of the Study shows that the project has the potential to **return a positive EBITDA of US\$ 623.8 million over a 20 year period** supporting an estimated **Net Present Value of US\$ 201.4 million**, using an 8% discount factor. The project requires a modest start-up capital investment of US\$67.5 million which is staged over 4 years, plus working capital and provides estimated returns supporting an **internal rate of return of 45.6%**.

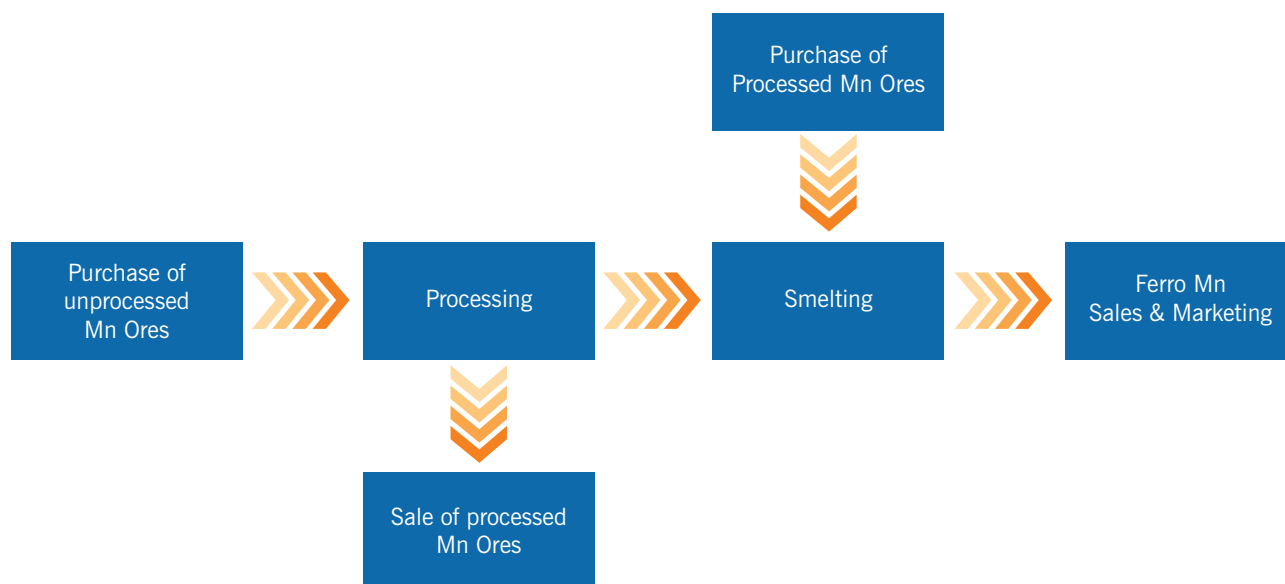
### Physicals and Financial Summary (20 Year)

Annual production capacity	144,000 tpa of Ferro Alloys & 180,000 tpa of Mn Lump Ore
Project CAPEX (Furnaces, Jigs, Establishment)	US\$67.5 million staged over 4 years
Total Project Net Turnover	US\$ 3,525 million
Total Project EBITDA	US\$ 623.8 million
Project NPV @8% (pre tax)	US\$ 201.4 million
Project NPV @8% (after tax)	US\$ 197.5 million
Project Internal Rate of Return (IRR) (before tax)	45.6%
Payback Period (Including the construction cost)	2 years

The Study is based on a manganese purchasing, processing and smelting business. High grade manganese ore will be purchased locally from Timor and blended with medium grade high iron manganese ores sourced from Africa.

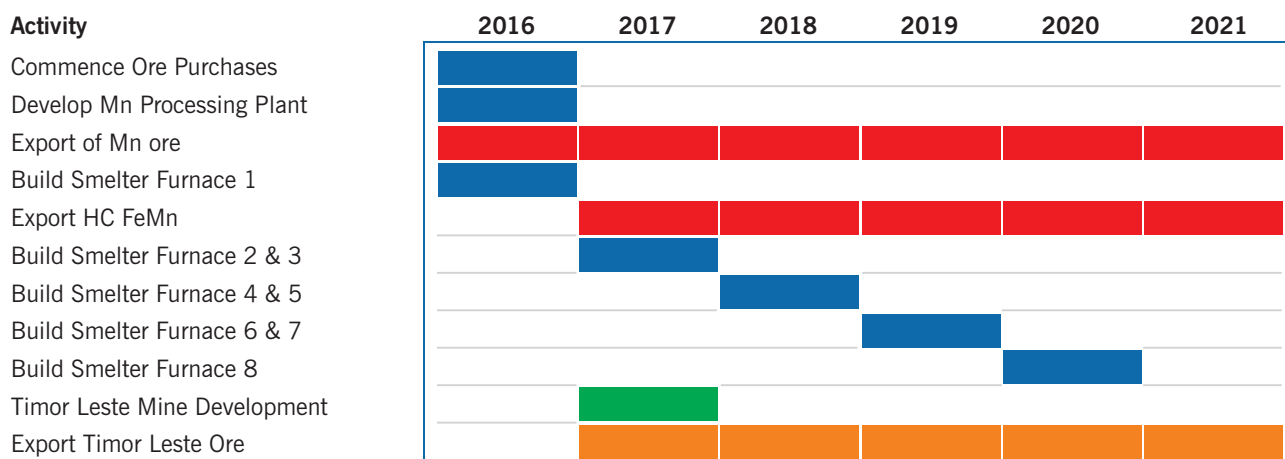
The business model can be scaled up or down as ore supply allows which minimises start-up capital requirements. The business model can also be augmented in terms of revenue streams and ore sources permitting early cash flow and future expansion opportunities.

## GMC Business Plan



The business plan is a staged plan which allows for early cash flow from the export of locally processed manganese ores whilst construction on the first smelting furnace occurs.

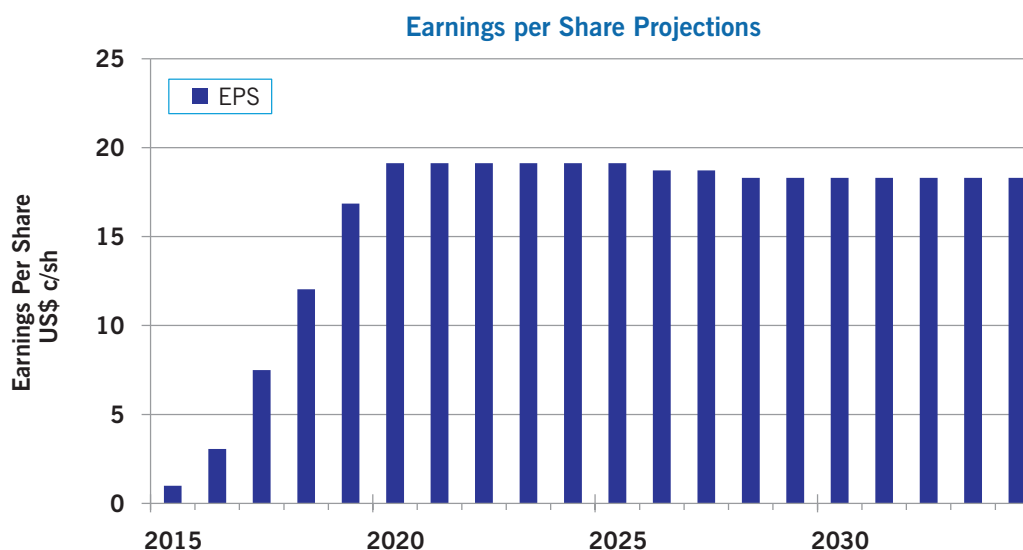
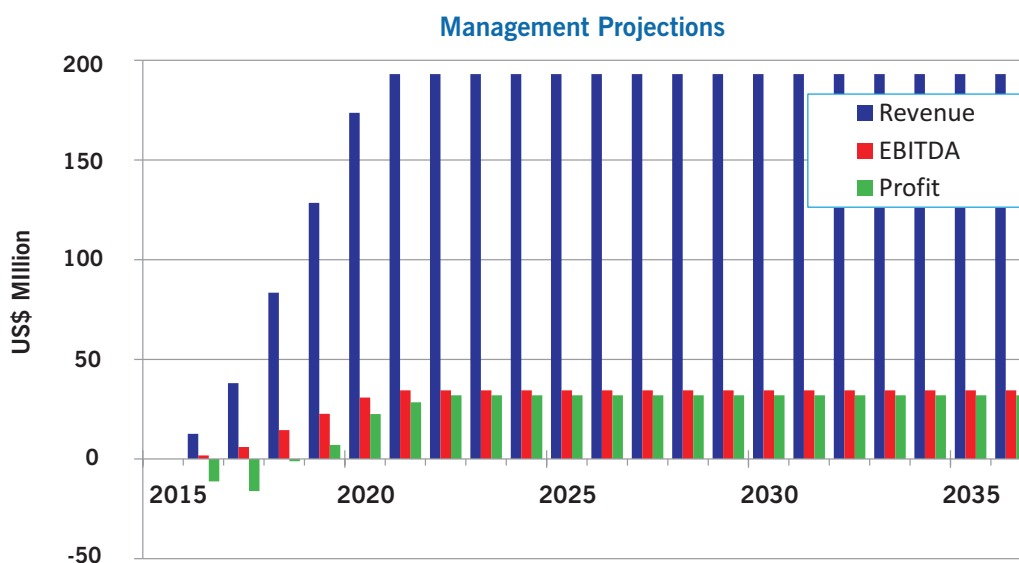
## GMC Development Schedule Outline



## Value Proposition

GMC will develop a fully integrated manganese enterprise based on:

- Sound project economics
- Operating costs at 80% Industry average cost
- Highest quality ore supply (+50% Mn)
- Producing a premium manganese alloy (78% Mn)
- Established port and infrastructure
- Government full support, fiscal incentives, tax holidays
- Board/Management depth with Indonesian and manganese experience
- Global sales network
- Modest capital requirement
- Early cash flow
- Robust dividend policy with 50% of profits to be distributed



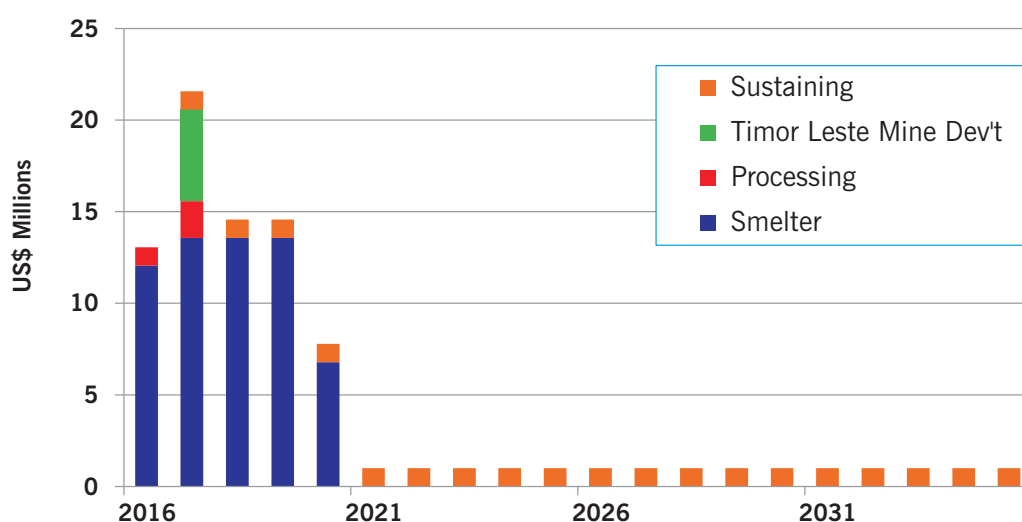


## Project Funding

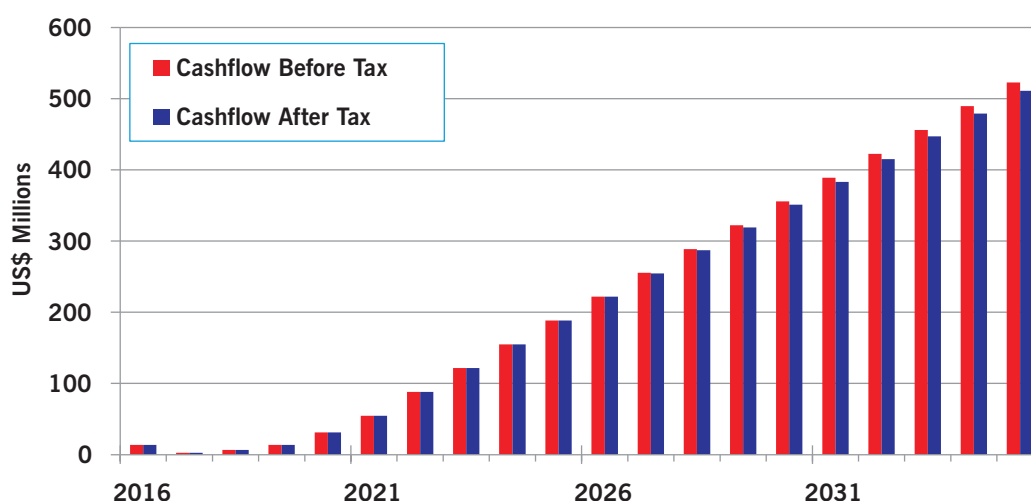
Project Funding The total project capital cost of US\$67.5M is spread over 4 years and will be provided by:

Source of Funds	Quantity	Allocation
Gulf Manganese equity	US\$ 15.0M	1 <sup>st</sup> Stage
Singapore IPO equity	US\$ 25.0M	2 <sup>nd</sup> Stage
Project Debt	US\$ 17.5M	3 <sup>rd</sup> Stage
Project operating cash flow	US\$ 10.0M	4 <sup>th</sup> Stage
<b>Total</b>	<b>US\$ 67.5M</b>	

### Capital Expenditure (US\$ M)



### Cummulative Cashflow (Inc. Capital Raising) (US\$ M)





## Ore Purchases

Manganese ores for the processing and smelting business will be purchased from a number of local and overseas suppliers.

In the first year, high grade manganese ores will be purchased and treated via a jigging process to produce lump manganese ore. This will be exported to provide early cash flow whilst the first smelter is being built.

To optimise the smelting process high grade ore will be purchased locally from artisanal miners and others in Timor. The manganese ores in Timor are typically high grade, approximately +50%Mn and make ideal smelter feed. The local Timorese manganese ores are typically low in iron content, <2% Fe, and as such iron units need to be added.

To supplement the local manganese ores, other manganese ores will be purchased from Africa. This will be lower grade manganese units but importantly will include medium levels of iron. Iron units are an important component in the smelting process to ensure the product specifications are met with respect to manganese grade.

GMC will also enter into a supply agreement with a South African group for the supply of up to 80,000 tonnes per annum of high iron manganese ore from its South African operations.

The balance of the ore supply, up to 220,000 tonnes per annum, will be sourced locally in Indonesia and Timor Leste.

## Processing and Sale of Manganese Ores

Processing will be via industry standard, crushing, screening and mechanical jigging processes.

The manganese ores in Timor have a high specific gravity and as such they are ideal for separation using a jigging process.

The proposed crushing, screening and jigging components are typically used for processing manganese ores and are relatively low technology, low operating cost and suitable for the ore types seen in Timor.

The systems are also scalable in that a number of smaller processing sites may be located close to mining operations minimising operating costs.

### Manganese Processing Key Data

Manganese Ore Purchase Price (Local ore)	US\$ 100/t
Manganese Ore Purchase Price (Overseas ore)	US\$ 150/t
Manganese Ore Sale Price*	US\$ 225/t
Manganese Ore Lump Margin (Indonesian ore)	US\$ 20/t
Manganese Ore Lump Margin (Timor Leste ore)**	US\$ 42.50/t
Manganese Ore Lump Sold tonnes per annum	180,000 tpa

\* Alloy Consult ([www.alloyconsult.com](http://www.alloyconsult.com)) Spot Price forecast page 32

\*\* Timor Leste ore is not subject to Indonesian Export Tax

## Processing and Sale of Manganese Alloys

GMC will build a FeMn Alloy smelter at a site near Kupang in West Timor, Indonesia.

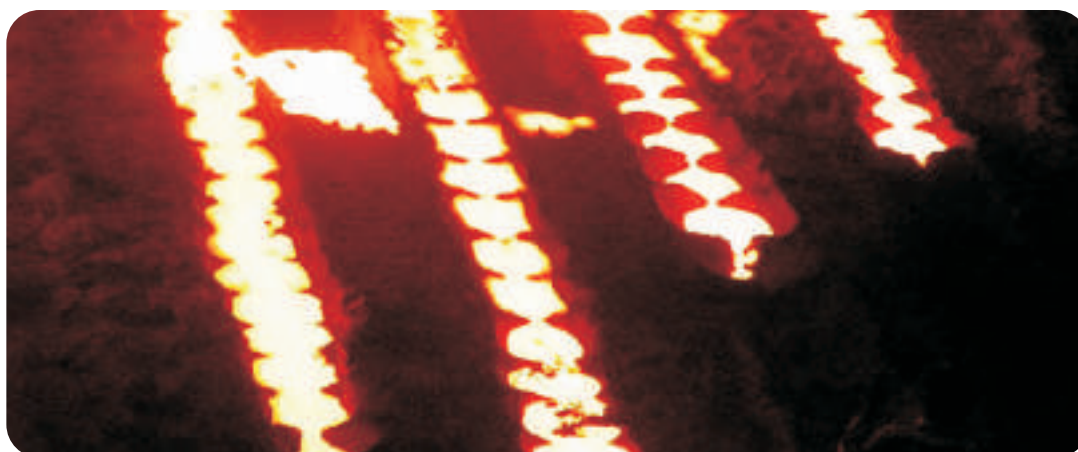
GMC has entered into an agreement to secure 50 hectares of land with the landowners and the local Regent for the development of the proposed smelter. This site was chosen as it is close to the port of Tenau in Kupang which will minimise consumable import costs and export logistics costs, as well as being close to the coast permitting use of sea water for power station cooling systems.

GMC has engaged a specialist Australian engineering group, Como Engineers Pty Ltd (**Como**), to oversee the engineering and project management of the proposed smelters. Como have produced budget level drawings and costings for the supply and operation of a smelter and associated power station.

### Smelter Key Drivers

Manganese Ore sourced from Timor	220,000 tpa
Manganese Ore sourced from Overseas	80,000 tpa
Total Feed	300,000 tpa
FeMn Alloy produced	144,000 tpa
FeMn Alloy sale price*	US\$ 1,100 /t
Cost per Tonne Alloy (at full production)	US\$ 839 /t
Operating Margin (at full production)	US\$ 261 /t

\*Alloy Consult ([www.alloyconsult.com](http://www.alloyconsult.com)) Spot Price forecast page 31



## Power Supply

Power for the first smelter will be supplied on a user pays basis and sourced from the local Government power supply company PT PLN in Kupang.

GMC is in discussions with power supply infrastructure providers about long term power supply options using a BOOT (Build, Own, Operate and Transfer) arrangement, where a contractor builds and supplies power on a user pays basis and ultimately GMC will purchase the infrastructure and operate the power station in the longer term.

## Taxation

The corporate tax rate in Indonesia is 25%.

Application will be made to have GMC's Indonesian subsidiary, PT Gulf Mangan Grup, classified as a "Pioneer Industry" as the project will have a combined investment of US\$ 142.5 million (US\$ 67.5 million for the smelter and US\$ 75 million for the Power Plant).

As a Pioneer Industry the company will have access to 10 years of full tax relief followed by another 2 years of 50% tax relief.

## 2 Gulf Manganese Corporation Profile

### Introduction

Gulf Manganese Corporation Limited (ACN: 059 954 317), is an Australian listed public company which is proposing to develop a ferromanganese alloy business based in Indonesia.

GMC is based in Perth, Western Australia. Perth is the mining capital of Australia and as such has many commercial and technical service providers available to assist with the project.

The business will be controlled and directed from GMC's Kupang office.

GMC has 73,770,638 shares on issue with a further 15,770,638 unlisted options. The market capitalisation of GMC is approximately AU\$ 3.0 million

### GMC Team

The GMC Board and management consists of mining executives with proven experience in the exploration, mining, processing, smelting and marketing of manganese in Australia and globally. The board and management of GMC and its Indonesian operating subsidiary PT Gulf Mangan Grup, consists of:

**Graham Anderson**



**Executive Chairman**  
Corporate Compliance

**Dr. Peter Williams**



**Non-Executive Director**  
Geologist

**Paul O'Shaughnessy**



**Non-Executive Director**  
Production

**Michael Walters**



**Non-Executive Director**  
Marketing

**Michael Kiernan**



**Chairman**  
PT Gulf Mangan

**Jaques Beylefeld**



**Metallurgical Engineer**  
PT Gulf Mangan

**Dr Herry Kotta**



**Environmental Advisor**  
PT Gulf Mangan

**Bill Sinclair**



**Engineering Advisor**  
PT Gulf Mangan

**John Parker**



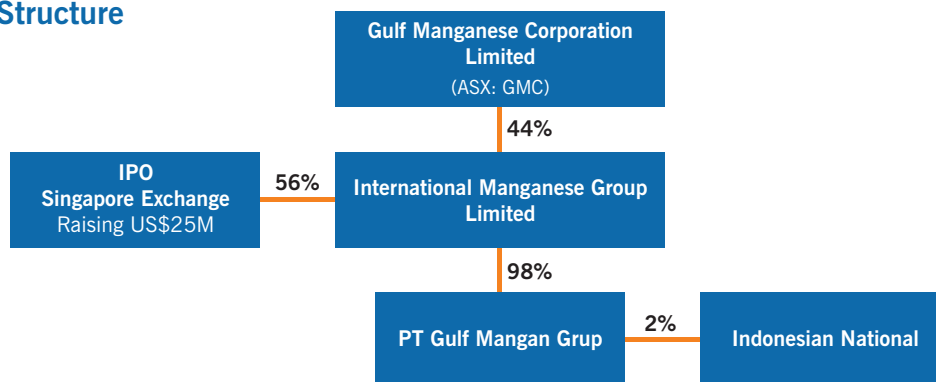
**Metallurgical Advisor**  
PT Gulf Mangan

**Gary Wieser**



**Power Advisor**  
PT Gulf Mangan

## GMC Group Structure

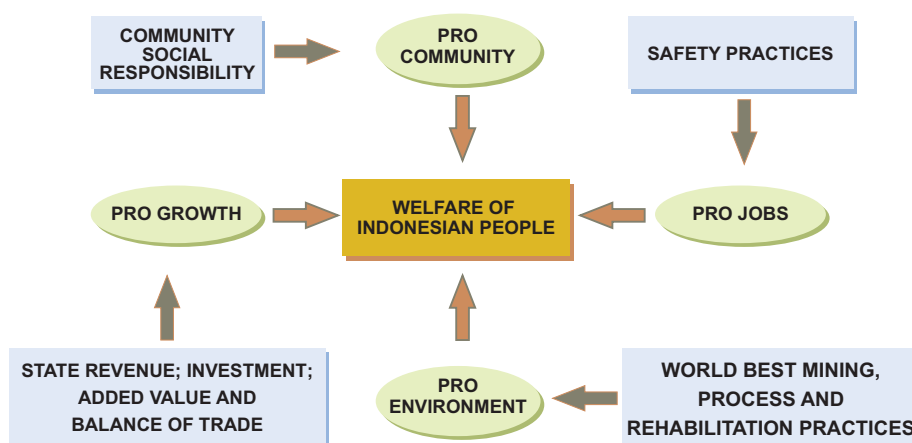


PT Gulf Mangan Grup is a foreign owned Indonesian based PMA Company which will hold land tenure and operate the smelting, power station and supply chain enterprise within Indonesia.

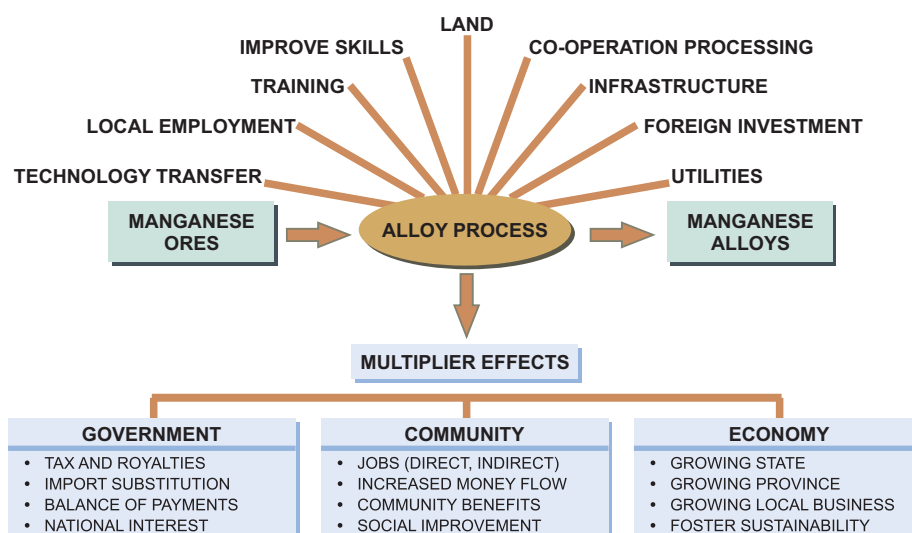
As a locally incorporated Indonesian company it benefits from aspects not readily available to foreign incorporated companies, such as access and security to land, tax concessions and tax holidays (fiscal incentives).

It is proposed to make application in the second half of 2015 to list International Manganese Group Limited, which holds the Indonesian manganese business, on the Catalist Board on the Singapore Exchange by issuing 100,000,000 fully paid shares at US\$ 0.25 per share raising US\$ 25,000,000.

## Gulf Strategy



## Gulf Model



## 3 Project Description

### Project Overview

GMC is planning to develop a ferromanganese smelting and sales business to produce high carbon ferromanganese alloys in Timor, Indonesia

The business will comprise four components all based in Indonesia.

1. Ore purchasing;
2. Ore processing;
3. Alloy smelting;
4. Sales & marketing.

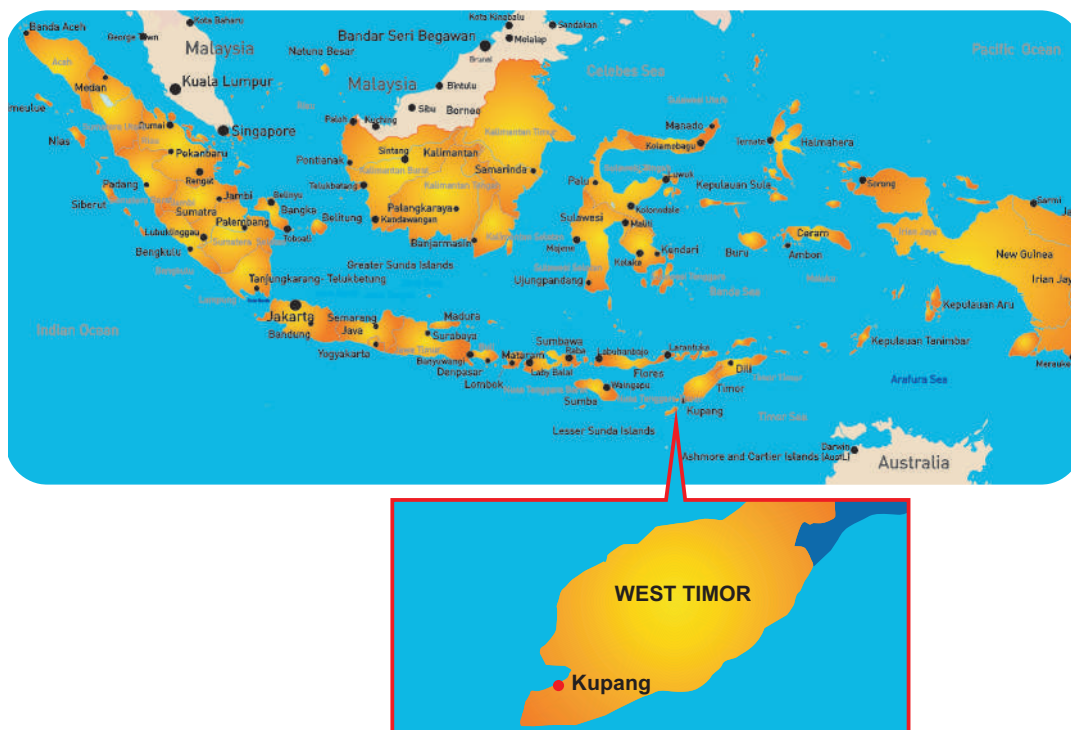
The annual ferromanganese alloy production is set at 144,000 tonnes per annum together with 180,000 of high grade manganese ore, generating on today's prices, some US\$ 198,000,000. The Smelter feed will comprise approximately 75% local ores (50+% Mn) and 25% imported medium grade manganese ores (35%Mn content). Production will occur in 8 furnaces in a smelting facility built just out of Kupang.

### Location

Kupang is the capital of the East Nusa Tenggara province and the capital of West Timor.

The GMC proposed smelter site is located approximately 12 km South West of Kupang at approximate coordinate of 10° 16' 25.50" S and 123° 30' 09.07" E and is near the village of Kuanheum. The site is approximately 8 km South West from the port of Tenau.

**Kupang Location Map**





## Regulatory Environment

### Operating Permit

The business model proposed by GMC for the development of a processing and smelting business in Kupang requires certain Indonesian licensing and with local licensing, GMC will obtain the following licences:

Title	Description	Licensing Body	Authority
Processing licence	Processing licence	IBP (BKPM)	National
Environment Management Plan (EMP)	Environmental management plan	Kabupaten	Local
Environment Management Effort (EME)	Environmental management effort	Kabupaten	Local
Environmental Clearance (AMDAL)*	Environmental Clearance	Kabupaten	Local
Ore Export Exemption	Export permit	Trade Ministry	National

\*Refer Appendix C

### Environment

Gulf will always operate as a responsible and ethical company and will promote a culture of responsible environmental management throughout our company. Sustainable development provides a means of integrating environmental and economic goals, to provide outcomes that are both environmentally acceptable and cost effective. Managing the environment in order future generations are not disadvantaged will be a major focus for Gulf.

**Gulf will introduce world-leading value adding processing and environmental practices, thereby creating an environmentally economically sustainable ferromanganese alloying industry centred on Kupang in West Timor.**

Gulf will work closely with local communities, government agencies and key stakeholders to ensure we strive for world's best practice of environmental performance, while operating our business activities.

In particular, Gulf will establish a positive working relationship with the appropriate Provincial and Regency Government Departments together with the local community.

Gulf will establish an ongoing environmental monitoring program to ensure rapid response to any environmental incidents that may occur. All incidents will be investigated so as to implement preventative measures and minimise the likelihood of reoccurrence.

All environmental programs will be administered by our Environmental Advisor, Dr Herry Kotta.

All activities in the smelter plant and power plant will ensure the effects on the aspects of air quality, surface water and ground water, waste disposal, wildlife and vegetation, as well as socio-economic are minimised and within all acceptable levels set by Government.

The initial key environmental review process to be completed in advance of proceeding to permitting for the project is an Environmental Management Plan (UKL-UPL). This is to be carried out by PT Adi Banuwa, Dr Herry Zadrak Kotta.

GMC has a commitment to carry out a sustainable development and to provide a means of integrating environmental and economic goals to provide outcomes that are both environmentally acceptable and have high economical value by the introduction of world leading environmental standards.



## Our Community Social Responsibility

### Developing Value Adding Resources

The benefits of value adding resource development to communities extend far beyond creating employment. The industry significantly contributes to export income to grow the economy, taxes, development of regional infrastructure and information technology transfer, together with improving and increasing skills.

Indonesia is primarily a village-based society with nearly 80,000 villages spread throughout the archipelago.

The Timorese village people are the prime focus of Gulf's Community Social Responsibility and the company has developed and will implement when production commences what we call our 5 Star Program (Bahasa – Program 5 Bintang). The Program covers:

#### Employment/Training

- Provide sustainable jobs
- Provide skills, training and knowledge



#### Education

- Provide community schools assistance
- Provide higher education scholarships



#### Health

- Provide community clinics assistance
- Subsidise medical staff costs



#### Village Support

- Help provide fresh running water
- Help improve village roads



#### Sustainability

- Fostering ongoing business development (Jatropha, Micro Finance)



## Our Health and Safety Responsibility

Gulf's first and overriding value is **"Safety First"** for our people. Every employee is empowered to challenge any colleague, irrespective of their position, if they think safety is being compromised.

Gulf remains focused on continually reinforcing a culture of safety first. Progressively we will be implementing initiatives and programs to put safety at the forefront of all activities. This will be an ongoing activity for our business, as there will always be more to do to make sure the workplace is as safe as possible so all our people return to their homes after their work.

A Visible Safety Leadership (VSL) program will be launched, emphasising the responsibility of leaders in our business to oversee a culture of putting the safety of every employee front and centre of everything that is done and in every activity we do, whether on the processing site or in the office environment.

The focus of the VSL program will be to up-skill leaders and supervisors to be able to make observations to encourage interaction and engagement on safety issues, improve hazard awareness and prevent incidents, and to reinforce a collaborative culture in which safety is a core value in our organisation.

Gulf will adopt a back to basics approach to ensure every area of our business does the best it can to maximise and ensure safety performance. This will lead to what we believe to be a more effective approach to risk management.

A portion of the workforce will be contractors and we view contractors similar to our employees and all incidents involving contractors will be investigated with Gulf's involvement and included in the company's safety reporting. Accordingly, Gulf will work closely with contractors to instil a shared culture of working safely.

Given Gulf's manganese ore and alloys will be transported from mine and smelter sites to ports by contractors, Gulf will establish a Logistics Awards Program (the LAP Award) to encourage, recognise and reward continuous exemplary performance by those involved in transportation within the communities in which we operate.



**... a Visible Safety Leadership program will be launched with an overriding value that is safety first**

## Operating Covenants

- Nationalism** To protect the national interest by building a manganese downstream value adding industry
- Community** To provide shared benefits for Village Communities
- Employment** Create sustainable jobs for local people
- Training** To empower local people through training
- Skills** To improve and increase skills leading to higher standard of living
- Knowledge** Introduce world leading processing knowledge
- Health** To provide medical benefits through Yayasan Komunitas Sehat
- Education** To provide education scholarships benefits through Yayasan Belajar untuk Hidup
- Environment** To introduce and implement world best processing practices and monitoring
- Sustainability** To help develop and foster ongoing income businesses for local people and local economy

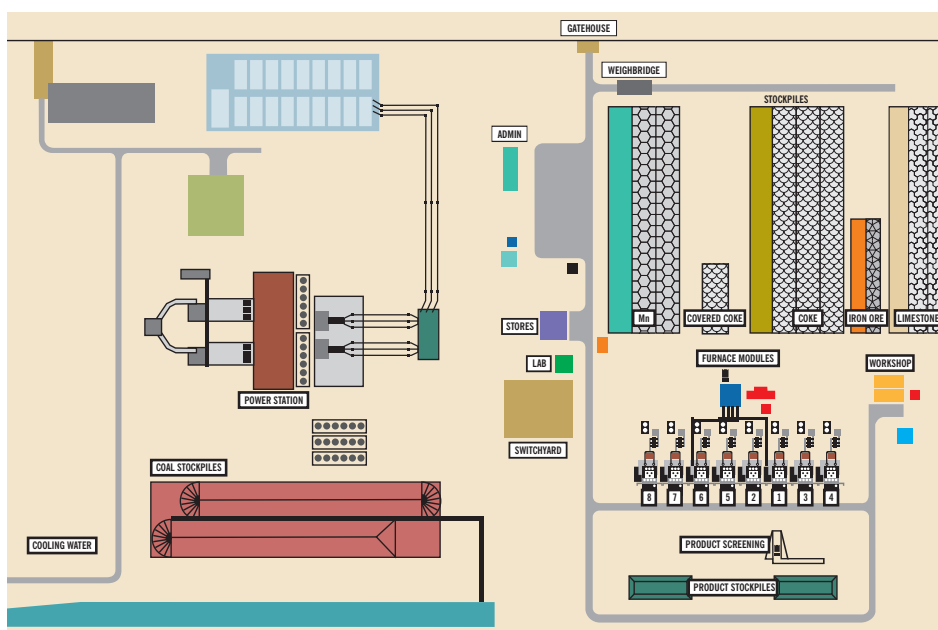
**These 10 Operating Covenants will form the basis and spirit of Gulf's smelter business for the benefit of the people of East Nusa Tenggara and Indonesia**

## Land Acquisitions

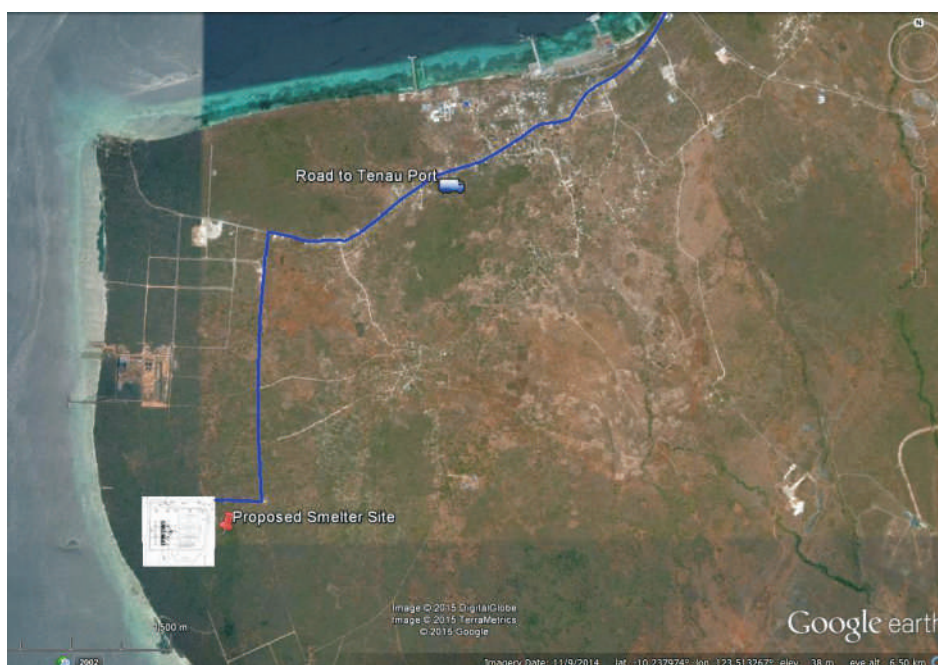
### Smelter and Power Plant

GMC has entered into an agreement to secure 50 hectares of land with the landowners and the local Regent for the development of the proposed smelter near Kupang in East Nusa Tenggara. This is 8 km from the Port of Tenau at Kupang and  $\frac{1}{2}$  km from the beach. This is a 30 year lease with 20 year extension providing suitable tenure for GMC's development plans.

### Layout Plan of Proposed Smelter Site at Kupang



### Proposed Smelter Site at Kupang





## Manganese Ore Purchases

In line with the Indonesian Government Mining Law 2009, there is a ban in place preventing the export of ore without "value adding". This ensures the country gains maximum benefit from its resources. As assistance to companies with the intent to develop value adding processes such as smelters, the Government will allow exemptions in order to lessen the financial burden. As GMC will be building a smelting facility the company will be able to apply for an exemption in order to export ore as per Government Regulations.

The ban becomes total during 2017 by which time GMC will have developed a mining operation in Timor Leste in order to continue the supply high grade manganese to GMC's manganese ore customers. The ore in Timor Leste is of similar characteristics to the West Timor ore. Surplus ore from Timor Leste will be imported into West Timor to blend with the local ores. This will be an enhancement for Indonesia in benefitting from value adding the Timor Leste manganese.

	Mn Ore Requirements			Supply				
	Smelter	Export	Total	Smelter		Export		Total
				Indonesia	O/Seas	Indonesia	Timor Leste	
2016	40	60	100	30	10	60	-	100
2017	120	90	210	90	30	45	45	210
2018	200	120	320	150	50	-	120	320
2019	280	150	430	210	70	-	150	430
2020	300	180	480	220	80	-	180	480

Timor - Locally mined manganese ores are some of the world's highest commercial grade manganese with manganese grades in excess of 50%Mn. Local manganese ores are also low in iron.

The higher manganese content in the ore is preferable for smelter feed since less power is required than for lower manganese content ores.

GMC will have supply agreements sourcing medium grade manganese ores from South Africa. These ores although having lower manganese grades are more cost effective and contain medium to high iron grades up to 20% Fe, which is required to blend with the lower iron content Timor ores.

Element	Timor	South Africa
Mn	52 %	35 %
Fe	2 %	20 %
SiO <sub>2</sub>	8 %	5 %
P	0.08 %	0.05 %
S	<0.01 %	<0.01 %

Indonesian sourced manganese ores will be delivered to centralised jig separation plants, which will be used to clean-up the local ores. From here ore will be directed to GMC's smelter and, also sold as high grade lump ore on the world markets.

Lump manganese from the jig separation plants will either be trucked to Kupang or barged from northern ports of Wini and Atapupu to the Port Tenau, Kupang.

Other manganese ores with higher iron content which are required for blending will be purchased from Africa and shipped to the Port Tenau, from where they will be transported by road, some 8 km, to the smelter site.

## Manganese Ore Stockpile



## Manganese Ore Separation

### Jig Separation Plant

It is estimated that up to 220,000 tonnes per annum of local ore will be required; together with 80,000 tonnes of imported manganese ores to meet the smelter feed demands. The remainder of the locally processed ore will be available for sale to domestic and the international manganese markets where it will obtain a premium price as the highest grade commercial manganese ore available.

Manganese ores sourced from local Timorese artisanal miners will be delivered to centralised separation facilities. Separation Jigs will be used to clean-up the local manganese ores prior to smelting or export. GMC has allowed for up to 3 Jig Facilities to process the manganese ores prior to shipment to the smelter or export. Each plant has an annual capacity of 250,000 tonnes of ore production.

GMC have allowed to install up to 2 jigs at each of 3 separation facilities.

Typical manganese ores in Timor have a density of 3.4-3.8 g/cm<sup>3</sup>, whereas typical waste materials, mostly quartzite or clays, have a density of 2.4-2.7 g/cm<sup>3</sup> and as such jigging is ideal for the separation of the gangue (waste materials) from the manganese ores.

The South African styled jigs are chosen as they are mechanically simple which will suit remote locations in Timor, they are modularised and as such easily installed and moved, self-contained and only need power and water to operate and require less capital compared to more complex jigs.

### Jig Plant Capital - Summary per Plant

Jig Capital Expenditure	US\$
New Jig 1 50 tph	US\$ 275,000
New Jig 2 50 tph	US\$ 275,000
Twin Deck Screen	US\$ 250,000
Power and Water Supply	US\$ 75,000
Office	US\$ 50,000
Contingency	US\$ 75,000
<b>Total Capex</b>	<b>US\$ 1,000,000</b>

### Jig Plant Operating Cost - Summary

Jig Operating Expenditure	US\$/t Feed
Ore Purchase	US\$ 100.00 /t
Operating Costs	US\$ 12.50 /t
Salaries & Wages	US\$ 2.50 /t
Logistics	US\$ 10.00 /t
<b>Total Opex</b>	<b>US\$ 125.00 /t</b>

### Typical Modular Jig Separation Plant





## Ferromanganese Smelter

GMC are proposing to use semi closed submerged electric arc smelters at a site 12 km from Kupang city in West Timor. The site was chosen due to its location to infrastructure including the local port of Tenau and the adjacent sea.

### Smelter Production Profile

Year	No. Furnaces	Smelter Feed '000 tpa	Alloy Production '000 tpa
2016	1	40	18
2017	3	120	54
2018	5	200	90
2019	7	280	126
2020	8	300	144

### Target HC - FeMn Alloy Specification

Mn	Fe	C	Si	S	P
78%	14.5%	7.0%	0.5%	0.15%	0.12%

### Ferromanganese Alloy



### Smelting

Smelting is the process of converting manganese ores containing approximately 40-50%Mn into premium manganese alloys containing 70+% manganese in an oxygen starved, high temperature environment.

### Manganese Smelter - Tapping Molten Manganese Alloy



Material and energy requirement for processes in the smelting plant were calculated using mass and energy balances of total feed per annum of 300,000 tonnes high grade manganese ore and 144,000 tonnes high carbon ferromanganese production. Key parameters in processing- refining plant are summarized below.

#### Key Smelting Parameters

Number of furnace units	8
Operation time	650 hours per month
Total Smelter Ore Feed	25,000 tonnes per month
Total saleable ferromanganese	12,000 tonnes per month
Ferromanganese composition	78%Mn; 14.5%Fe; 7.0%C; 0.5%Si
Total energy requirement	64 MW

#### Ferromanganese Flow Sheet

Ferromanganese alloy is commonly produced through high temperature processing in an alternating current (AC) semi closed submerged electric arc furnace (SAF).

Each tonne of FeMn product requires 2.029 tonnes Mn feed, 0.874 tonnes of metallurgical coal and 0.337 tonnes of limestone.

The smelting process for a submerged electric arc furnace starts with the blending of manganese ore and other additive materials such as metallurgical coal, limestone and iron units when required. These additive materials are required for the following purposes:

1. Metallurgical coal is added to facilitate the reduction process of manganese minerals in the furnace
2. Limestone is added to lower the melting temperature of the slag.
3. Iron units are added to achieve the required iron content in the ferromanganese alloy.

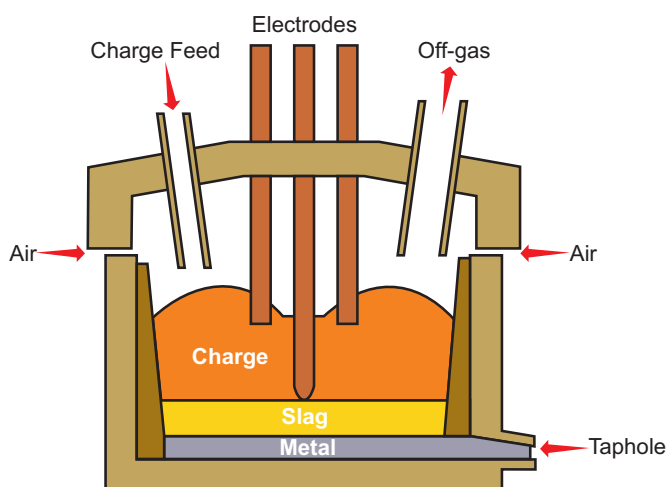
The smelting process takes place on a continuous basis with slag and metal tapped through a common tap hole. The interval between taps is typically between 90 and 100 minutes. Metal is collected in casting moulds. The hot alloys are naturally cooled until solidified then crushed to -70 mm size. The amount of ferromanganese alloy produced from one furnace is approximately 1,500 tonnes per month.

Ultimately the smelter facility will consist of up to 8 x 9MVA furnaces, each will be capable of processing 40,000 tonnes of ore feed to produce approximately 18,000 tonnes of alloy product per annum.

The benefits of using an AC Electric Arc Furnace are:

- High temperatures release metal from ore to produce alloy in a cost effective manner
- Proven technology over many years
- South African built in modular form eliminating construction risk

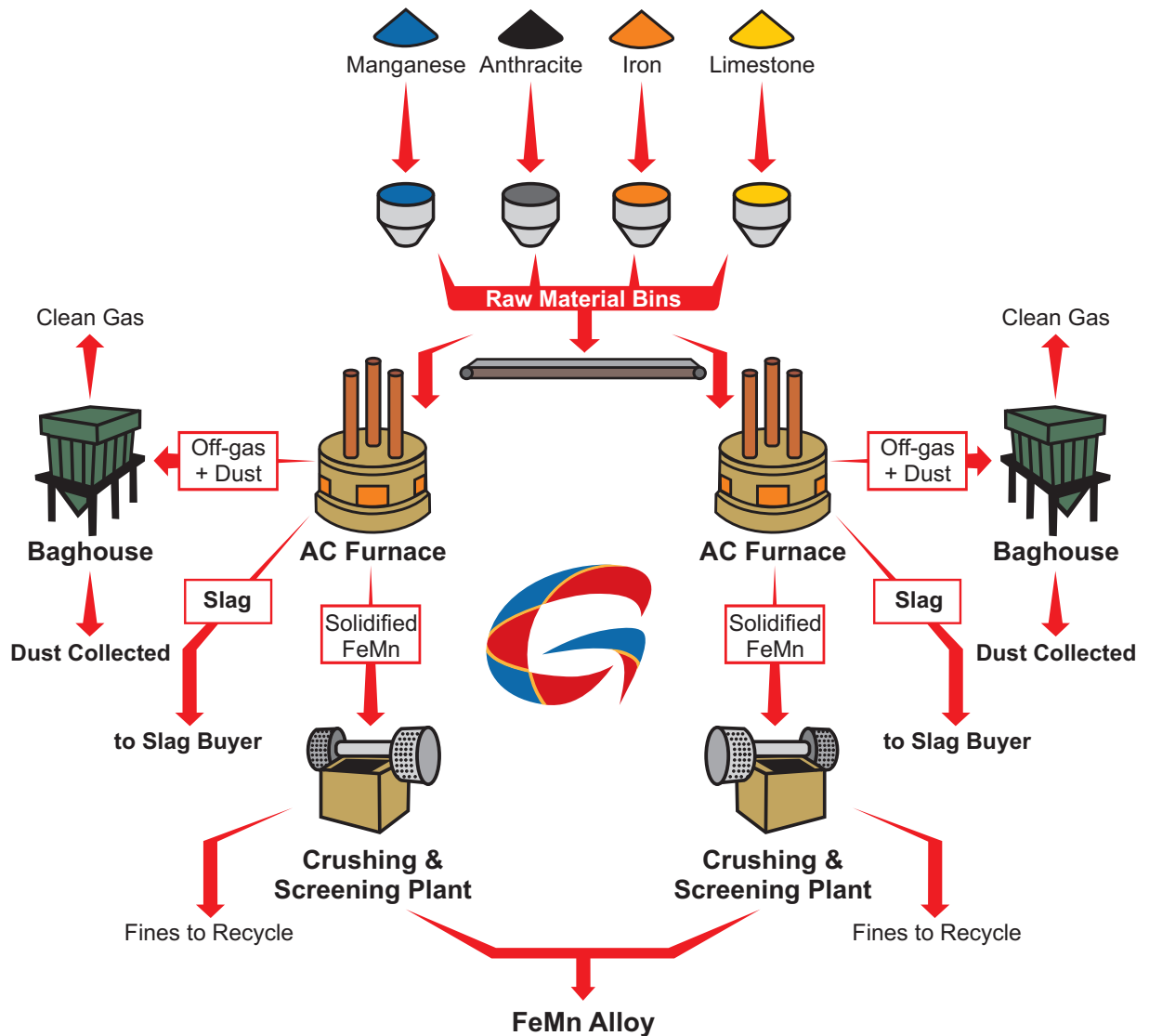
#### AC ARC Furnace



## Ferromanganese Smelter



### Block Diagram for HC - FeMn Production



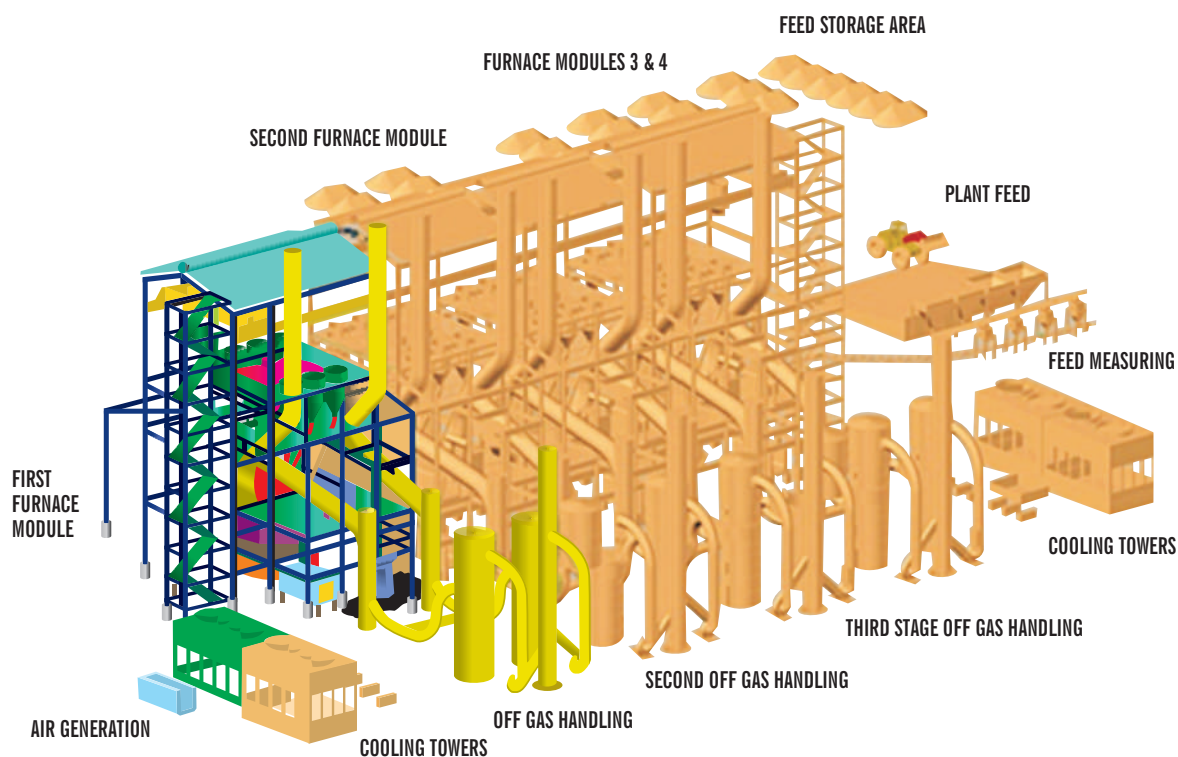
## Furnace Description

GMC is proposing to utilize South African smelter technology combined with up to date quality control systems and will be the most cost effective investment option. Eight medium-scale SAFs each with 18,000 tonne per annum production capacity will be used to give flexibility in the capital expenditure and to increase the reliability in day to day operation of smelters. GMC has engaged XRam Technologies (XRAM), a South African based company with significant experience in developing manganese smelters globally.

### A typical, semi-closed submerged, electric arc furnace



## Smelter Expansion Stages





## Furnace Major Components

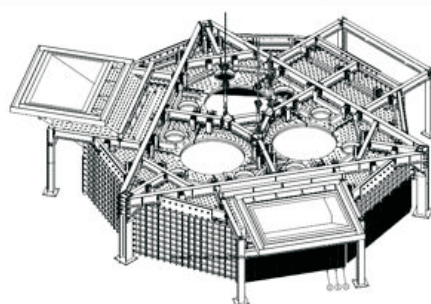
### Electrode Column

- Modular design
- Upper module
  - 'Fail-safe' slipping devices
  - Carbon steel yoke and mantle
- Lower Module
  - Stainless steel lower mantle
  - Stainless steel heat shields
  - Cast / forged HCC pressure rings
  - Rolled HCC contact shoes (High Conductivity Copper)
- Modular water cool bustube system



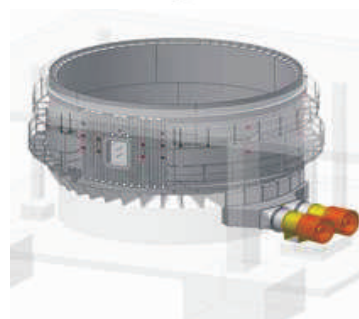
### Furnace Roof

- Semi-Closed
- Refractory lined and water cooled
- Self Supporting
- Modular design to optimize cost, performance and maintenance:
  - Centre - stainless steel
  - Centre ring - stainless/mild steel
  - Outer ring - mild steel



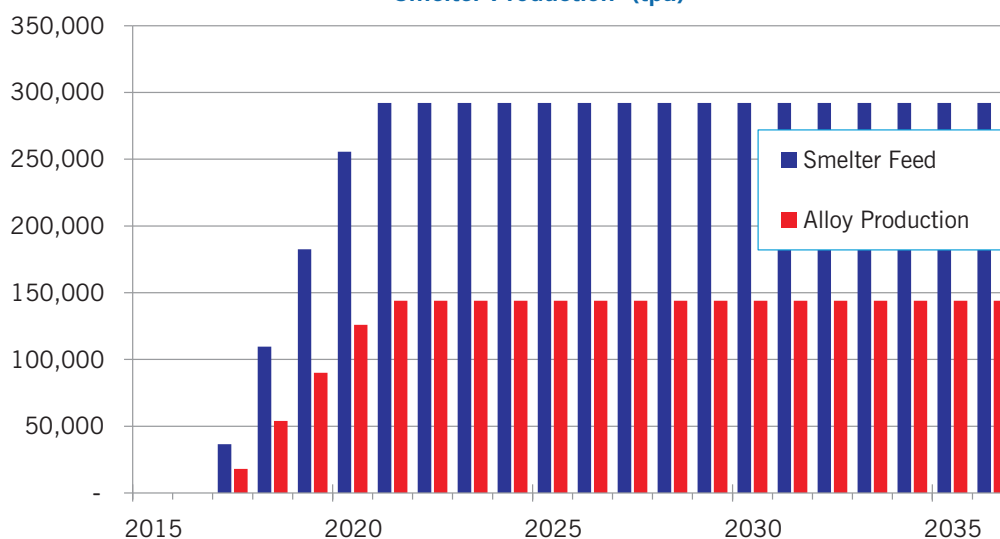
### Furnace Shell

- Robust carbon steel design
- Designed for structural & thermal loading
- Sidewall cooling - air or water
- Bottom cooling - air



## Smelter Production Schedules

Smelter Production (tpa)





## Smelter Capital Cost

### Smelter Capital - Summary

Smelter Capital Expenditure	US\$
<b>Site Establishment</b>	<b>US\$ 5,300,000</b>
Smelter Mechanical	US\$ 1,800,000
Technology package	US\$ 4,400,000
Piping	US\$ 400,000
Controls	US\$ 200,000
<b>Smelter (per furnace)</b>	<b>US\$ 6,800,000</b>

Capital and operating costs were supplied by XRam Technologies for the construction and operation of the ferromanganese furnaces.

### Smelter Operating Costs

Operating costs for smelter are based on the following allowances for smelter inputs.

Cost Component	Unit	Consumption	Unit price
Coal	US\$/t	0.874	95.00
Limestone	US\$/t	0.337	20.00
Salaries/Wages	US\$/t product		57.00
Power	US\$/t product		302.00
Smelter Consumables	US\$/t product		18.00
Logistics	US\$/t product		10.00
Maintenance	% of Smelter Capital		3.0%
Environment	US\$/t product		3.20
Overheads (Site)	US\$/t product		80.00
Overheads (Corporate)	% Net Revenue		5.0%
Royalties	% FOB		6.5%
Mn Ore Export Tax	% FOB		10.0%

### Furnace Manufacturer Contracts

GMC have contracted specialist Australian engineering group Como to act as project managers and provide the technical design of the smelter infrastructure and power station, as well developing the capital and operating costs estimates.

Como employ a team of 45 experienced metallurgists, engineers, construction supervisors and drafts people and has offices in Perth, Jakarta and Melbourne.

The specialist smelter group XRam Technologies have been contracted to provide detailed smelter designs including power and water reticulation circuitry design. The group has extensive experience in the design, construction and operation of alloying smelters.

### Smelter Development Schedule

Activity	2016	2017	2018	2019	2020	2021
Commence Ore Purchases	■					
Develop Mn Processing Plant	■					
Export of Mn ore	■	■	■	■	■	■
Build Smelter Furnace 1	■					
Export HC FeMn		■	■	■	■	■
Build Smelter Furnace 2 & 3		■				
Build Smelter Furnace 4 & 5			■			
Build Smelter Furnace 6 & 7				■		
Build Smelter Furnace 8					■	
Timor Leste Mine Development		■				
Export Timor Leste Ore		■	■	■	■	■



## Labour

The operation of the smelter at Kupang will generate 650 direct local jobs and have a flow on to 4,500 indirect local jobs. Labour will be sourced locally with minimal expat-staff required to oversee the process operation.

## Power

The first furnace will be powered by electricity sourced from the local Government power supplier, PT PLN in Kupang, requiring 6MW of power.

Power for all subsequent furnaces will be sourced from a power infrastructure group under an arrangement, where the provider will Build, Own, Operate and eventually Transfer the power station to GMC.

Each furnace requires approximately 8 MW of power, 7.0 MW for the furnace (2.7MW Hr/t alloy) and 1.0MW of ancillary power for dust extraction and water cooling etc. That will require a total of 64MW of power for the proposed 8 furnaces and ancillaries. GMC have received budget estimates for the purchase of power at US\$ 0.095/kwhr.

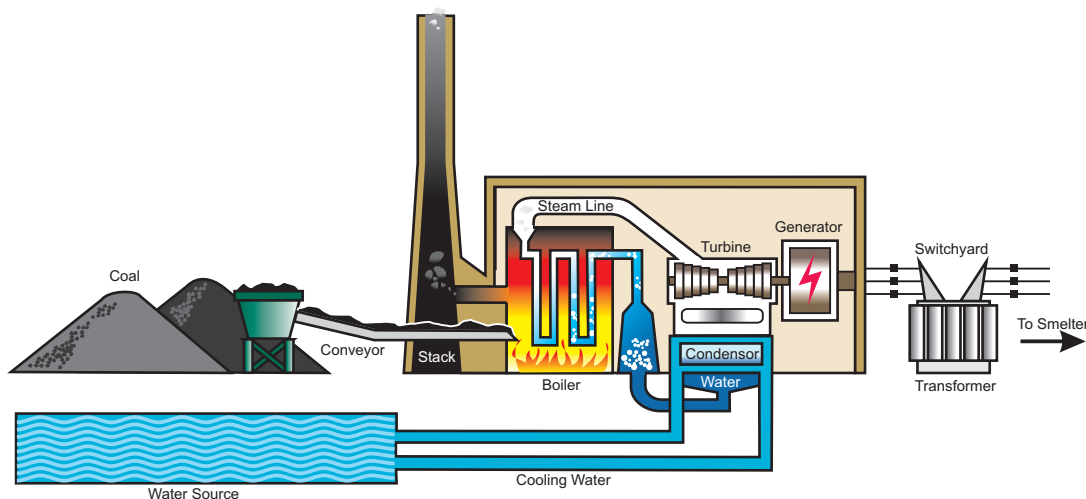
Coal for the power station will be sourced locally from Indonesian coal mines and barged to the Tenau port and transported to site by road haulage.

## Water

Minor quantities of potable water will be required for human consumption and in laboratory and cleaning systems and will be sourced locally from a bore field. The water circuit will be equipped with Reverse Osmosis plants and other filtration systems as required to ensure the water is of a suitable quality.

Process water will be required for the cooling of the coal fired power stations and sourced from the sea, approximately 500 meters from the smelting site. Warm water will be returned to the sea as is the standard practice in Indonesia.

**Coal Fired Power Station - Cooling Schematic**



## Raw Materials

Raw materials apart from manganese required for the smelter include metallurgical coal, iron units and limestone.

Coal will be imported from mines in Kalimantan and barged to the Tenau port. GMC have made an allowance of US\$95/t for the purchase of high calorific value metallurgical coal (6,200kcal/Kg). Coal will be used at a rate of 0.874t metallurgical coal to 1 tonne FeMn alloy.

Limestone will be sourced from a nearby local quarry at Kupang at an allowance of US\$20/t, and will be used at a rate of 0.337 tonne limestone to 1 tonne FeMn alloy.

Material	Current Price Range	Study Assumption
Coal	US\$ 70-80 per tonne	US\$ 95 per tonne
Limestone	US\$ 15-20 per tonne	US\$ 20 per tonne

## Manganese Alloy Sales and Marketing

90% of the ferromanganese product produced by GMC will be marketed overseas to high grade steel producers in Korea, Japan, Europe and China.

The quantity for export is 2.5% of the current global demand which is expected to grow at an annual average of 3.7% for the next 10 years. As such market stability will not be disturbed and consequently the financial analysis of the project can be carried out at a sound reliability level.

The remaining 10% of the product produced by GMC will be available for domestic consumption.

### Marketing Strategy

For overseas marketing, GMC has appointed the following marketing group;

- China - Metacrom Resources Ltd
- Korea - Metacrom Resources Ltd
- Japan - Roxy International Ltd
- Europe - IMC Ores & Alloys GmbH

GMC representatives have worked with these proven marketing groups for over ten years in the sale of manganese ores or alloys in the markets they represent.

### Offtake Agreements

Offtake agreements for both the manganese ores and ferromanganese alloys form part of the marketing representation agreements with allocations of:

MANGANESE ORES		FERROMANGANESE ALLOYS	
Destination	Allocation	Destination	Allocation
China	50%	Korea	25%
Korea	25%	Japan	25%
Japan	25%	Europe	40%
		China	10%

## Port and Shipping

### Port

It is proposed to utilise the nearby commercial port of Tenau. Tenau is a natural and deep bay for ships anchoring and docking with a draft of 9.2m sufficient for ships of up to Handymax size (35- 55,000t).

The wharf is equipped with transfer systems for material handling of solid bulk and containers, as well as firefighting system and lightings. The port operates 24 hours a day. The port will receive bulk coal from Indonesian locations and export manganese alloy products in 20 tonne containers. Manganese alloy will be delivered to the port on local roads and stored in 1 tonne bulka bags in a storage shed until loading into sea containers prior to export.

### Wini Port

The Wini container terminal is located in the North Central Timor Regency (Kefamenanu). Separated high grade manganese ore will be exported in 10,000 cargoes and also barged to the Tenau Port for delivery to the smelter in 5,000 tonne cargoes.

**Tenau Port - Kupang**



**Wini Port**





## 4 Financial Analysis

GMC has developed a financial model for its proposed ore purchase, processing and ferromanganese smelting business.

The financial model is based on quotations and known assumptions and utilisations based on similar sized operations. The model, including all cost and revenue assumptions, is calculated in United States Dollars (US\$). No inflation, cost or revenue escalation has been applied to the financial model.

The financial analysis of the Study shows that the project has the potential to return a **positive EBITDA of US\$ 623.8 million over a 20 year period** supporting an estimated **Net Present Value of US\$ 201.4 million**, using an 8% discount factor. The project requires a modest start-up capital investment of US\$67.5 million which is staged over 4 years, plus working capital and provides estimated returns supporting an **internal rate of return of 45.6%**.


### Physicals and Financial Summary (20 Year)

Annual production capacity	144,000 tpa of Ferro Alloys & 180,000 tpa of Mn Lump Ore
Project CAPEX (Furnaces, Jigs, Establishment)	US\$67.5 million staged over 4 years
Total Project Net Turnover	US\$ 3,525 million
Total Project EBITDA	US\$ 623.8 million
Project NPV @8% (pre tax)	US\$ 201.4 million
Project NPV @8% (after tax)	US\$ 197.5 million
Project Internal Rate of Return (IRR) (before tax)	45.6%
Payback Period (Including the construction cost)	2 years

A summary of the financial model is shown below, with a full financial model in Appendix A.

### Financial Model Summary (5 Year)

Model Dashboard
Gulf Manganese Corporation Limited
Business Model



GULF MANGANESE CORPORATION LIMITED

Timor Smelting Study
Summary

Scenario: Pioneer Industry

	KPI	2016	2017	2018	2019	2020	2021
Physicals							
Mn Ore Purchased	000 t	67	140	252	364	477	517
Mn Lump Sold	000 t	60	90	120	150	180	180
Smelter Feed	000 t	-	37	110	183	256	292
FeMn Alloy Sold	000 t	-	18	54	90	126	144
Project Life	Yrs	20	20	20	20	20	20
Revenue							
Total Revenue (Nett)	US\$	12.6	38.0	83.4	128.6	173.7	193.1
Costs							
Ore Purchase	US\$ M	-	1.4	4.1	6.8	9.6	11.0
Processing	US\$ M	10.9	16.8	23.6	30.4	37.2	37.9
Smelting	US\$ M	-	15.2	45.4	75.5	105.7	120.7
Total Op Costs	US\$ M	10.9	33.4	73.1	112.7	152.4	169.6
Start-up Capex	US\$ M	13.1	20.6	13.6	13.6	6.8	-
Sustaining Capex	US\$ M	-	1.0	1.0	1.0	1.0	1.0
Unit Operating Cost							
Total Cost / Tonne Alloy	US\$/t	839	-	846	840	839	839
Cash Flow							
IPO / Capital Raising	US\$ M	25.0	5.0	-	-	(5.0)	-
EBITDA	US\$ M	1.8	5.5	13.5	21.7	30.3	34.4
Pre-tax Cash Flow	US\$ M	(11.3)	(16.1)	(1.1)	7.1	22.5	28.4
Post-tax Cash Flow	US\$ M	(11.3)	(16.1)	(1.1)	7.1	22.5	28.4
NPV - Pre Tax	@8% DCF US\$ M	201.4					
NPV - Post Tax	@8% DCF US\$ M	197.5					
IRR	%	45.6%					



## 5 Sensitivity Analysis

The financial model was constructed so that the sensitivity of the models outputs could easily be measured in terms of changes to the inputs.

For the model the following variances were made

Input	Variance
Manganese Sale Price	+/- 10%
Operating Costs	+/- 10%
Capital Costs	+/- 10%
Project Start-up Delay	0, 3 & 6 Months

Once the above changes are made the impact on the financial models KPI's is tabulated:

Model Dashboard			GULF MANGANESE CORPORATION LIMITED					
Gulf Manganese Corporation Limited								
Business Model Active Case = Base case								
Timor Smelting Study			Base case	Mn Price +10%	Mn Price -10%	Opex +10%	Opex -10%	Capex +10%
Scenario Summary			20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total
Physicals								
Mn Ore Purchasd (Local)	kt		1,315	1,315	1,315	1,315	1,315	1,315
Mn Ore Purchasd (Foreign)	kt		8,249	8,249	8,249	8,249	8,249	8,249
Mn Lump Sold	kt		3,480	3,480	3,480	3,480	3,480	3,480
FeMn Alloy Sold	kt		2,592	2,592	2,592	2,592	2,592	2,592
Project Life	Yrs		20	20	20	20	20	20
Revenue								
Mn Lump Sales	US\$M		674.1	741.5	606.7	674.1	674.1	674.1
FeMn Alloy Sales	US\$M		2,851.2	3,136.3	2,566.1	2,851.2	2,851.2	2,851.2
Total Revenue	US\$M		3,525.3	3,877.8	3,172.8	3,525.3	3,525.3	3,525.3
Costs								
Ore Purchases O/S	US\$M		-	-	-	-	-	-
Processing	US\$M		1,237.5	1,245.3	1,229.6	1,361.2	1,113.7	1,237.5
Smelting	US\$M		2,173.8	2,199.5	2,148.1	2,391.2	1,956.4	2,170.6
Total Op Costs	US\$M		3,411.3	3,444.8	3,377.8	3,752.4	3,070.1	3,408.0
Starup Capex	US\$M		62.5	62.5	62.5	62.5	68.8	56.3
Sustaining Capex	US\$M		5.0	5.0	5.0	5.0	5.5	4.5
EBITDA	US\$M		623.8	942.9	304.8	334.0	913.7	627.1
Pre-tax metrics								
Pre-tax NPV @8% DCF	US\$M		201.4	341.1	61.6	74.3	328.5	209.5
Pre-tax IRR	%		46%	73%	20%	22%	71%	41%
Post tax metrics								
Post-tax NPV @8% DCF	US\$M		197.5	326.0	61.6	74.3	312.5	205.5
Post-tax IRR	%		46%	73%	20%	22%	71%	41%
Active Case			✓	✓	✗			
Best / Worst Case								

Variances to the financial indicators due to project implementation delays are shown below

Delay	NPV Before Tax US\$ million	NPV After Tax US\$ million	IRR %
No Delay	201.4	197.5	45.6%
3 Months	197.2	193.8	45.1%
6 Months	193.2	190.1	44.6%

## 6 Business Plan Risks

GMC will undertake a comprehensive risk management review, which will identify key business and operational risks and develop strategies to mitigate and control these risks.

### Strengths, Weaknesses, Opportunities and Threats

A SWOT analysis documents the Strengths, Weaknesses, Opportunities and Threats to the business plan.

#### Business Model - SWOT Analysis

		Strengths	Weaknesses
		<ul style="list-style-type: none"> <li>Large database of geological knowledge</li> <li>People on the ground with local knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Limited Indonesian mineral resource base to underpin development</li> <li>Project funding to be secured</li> </ul>
Internal		<ul style="list-style-type: none"> <li>Multi-level government support</li> <li>Complies with licences and approvals</li> <li>High grade manganese ore available</li> <li>Close to Port (African / Australian mines are typically 400+ Km from ports)</li> <li>Proximity to the mostly Asian Mn markets</li> <li>Proximity to Indonesian Coal/Iron Ore mines for smelter consumables</li> </ul>	<ul style="list-style-type: none"> <li>Limited metallurgical work</li> </ul>
		Opportunities	Threats
		<ul style="list-style-type: none"> <li>No competition in Processing or Smelting in Timor</li> <li>Local small scale Mn suppliers can mine and sell Mn ores once a processing route is established</li> <li>High unemployment in Timor will provide a ready source of labour</li> <li>Scalability - The operation can be developed in a staged manner</li> <li>Exploration potential in Timor, neighbouring Islands and Timor Leste</li> <li>Mn price is semi-cyclical in nature and is at low levels currently</li> <li>Early start-up of Cash flow using low cost processing and Mn lump sales</li> </ul>	<ul style="list-style-type: none"> <li>First smelter to market will gain a strong hold on ore supply</li> <li>Time to develop a smelter in compliance with Indonesian upstream processing requirements</li> <li>Other companies entering the smelting business</li> <li>Potential loss of export or other permits if milestones not achieved</li> </ul>
External			

### Risk Mitigation

#### Smelter Inputs

The key input cost areas as % of the total smelter operating costs are:

No.	Cost Area	% of Total Costs
1	Power	36%
2	Manganese Ore	32%
3	Manpower	17%
4	Met Coal	10%
5	Other Minor costs	5%
<b>Total</b>		<b>100%</b>



### Power

As power input is the major cost component therefore needs the main focus to ensure cost effective continuous supply, Gulf will develop its own "in-house" coal fired power station and will be self-sufficient and protected against any adverse occurrences.

For the first stage of development Gulf will receive off the grid power from the Government power supplier PT PLN - 6 Mega Watts on a user pay basis. As the enterprise expands into future stages, incrementally building 2 furnaces each year power will be supplied by an infrastructure group, on a user pay basis, who will Build, Own, Operate and Transfer the power plant to Gulf. In this way Gulf conserves upfront capital and upon transfer the project itself pays for the capital cost. Each power module will be built in 12 Mega Watt stages to service 2 furnaces.

### Manganese Ore

No.	Source	% of Cost Area	Tonnes per Annum
1	Local suppliers	75%	220,000
2	Overseas	25%	80,000

As the second major input Gulf will mitigate risk by entering into long term supply agreements for the overseas ores with a South African group and the ores will be shipped to the Kupang Tenau Port.

For local ore Gulf will enter into a minimum of 6 Ore Supply MoU's together with purchasing on a spot market basis to ensure continuity of supply for the high grade, low iron manganese ores.

### Manpower (full production)

No.	Location	No of Employees
1	Furnace Operators	400
2	Backup Operators	50
3	Maintenance Staff	25
4	General Staff	125
5	Office Staff	50
<b>Total</b>		<b>650</b>

West Timor has a high unemployment rate and as such has a large labour pool available. Gulf will selectively engage appropriate skilled personnel as furnace operators and provide extensive process training. Skills will include processing, ore sorting, alloy sorting, stockpiling and general site work.

Maintenance Staff will be fully trained by expat processing personnel while Office Staff will in the main be clerical duties.

General staff will include Health, Safety, Environmental & Community Management staff as well as laboratory and other technical positions.

It is the intention of Gulf to ultimately have the smelter facility totally operated by Indonesian Nationals with minimal expat input.

### Coal

Approximately 125,000 tonnes per annum of high calorific value (6,200 kcal/kg) metallurgical coal will be required at full production. Indonesia is blessed with abundant coal resources and this will ensure continuous supply will not be an issue.

Year	Coal Requirement
Year 1	16,000 tonnes
Year 2	50,000 tonnes
Year 3	80,000 tonnes
Year 4	110,000 tonnes
Year 5	125,000 tonnes





## Market Place

### Overview

As ferromanganese alloys are in general used in higher quality steels the major market will be Japan, Korea and Europe. China has a strategy to move to producing higher quality steels to support an export industry to adequately compete globally. This will lead to increasing demands for ferromanganese.

The current annual consumption of high carbon ferromanganese alloy is 4.2 million tonnes per annum.

The premium quality of Gulf's alloys will ensure a strong demand by quality steel producers. At full production Gulf's output will be 144,000 tonnes per annum which will account for 2.5% of world consumption. World demand for high carbon ferro alloys is forecast to grow at the rate of 10% over the next 5 years.

### Price Cycle

Gulf's operating costs of US\$ 839/tonne for high carbon alloy is some 80% of the global industry average. The forecast for the next 5 years ranges from US\$ 1,000 - US\$ 1,200 per tonne - having peaked at US\$ 2,700/tonne in 2008.

### Gulf's Sales

As the quality of the ferro alloy being produced, annual production being small in the global sense, built up over a 4 year period Gulf is confident its projected sales volumes and prices will be achieved.

Gulf has used a selling price of US\$ 1,100/tonne high carbon alloy which produces an NPV of US\$ 201.4 million (8% discount rate) and an IRR of 45.6%.

### Project Delay

Gulf has used an achievable project development schedule for the development of the project. However delays, in the implementation of the project schedule, are possible and sometimes unforeseen.

The impact implementation delays on the projects NPV and IRR is shown below.

Delay	NPV Before Tax US\$ million	NPV After Tax US\$ million	IRR %
No Delay	201.4	197.5	45.6%
3 Months	197.2	193.8	45.1%
6 Months	193.2	190.1	44.6%

# 7 Manganese Market

## What is Manganese

Manganese is the 12<sup>th</sup> most abundant mineral in the earth crust. It is a hard, brittle metallic element that is listed before iron in the periodic table.

**Manganese Lump Ore**



**High Grade Manganese Ore**



Manganese is the fourth most consumed metal in the world only exceeded by iron, aluminium and copper. Global mine output was 17.3 million Mn units in 2014 with over 90% going into steel production, where there is no viable substitute in the steel making process.

Manganese is an essential ingredient of many industrial processes, especially in steel production where it is primarily used to remove sulphur during the steel making process as well as hardening the steel. Manganese is used to make many things, from spacecraft to batteries. Its compounds are important for purifying water and for glazing pottery and glass. Manganese is an essential mineral in our diet.

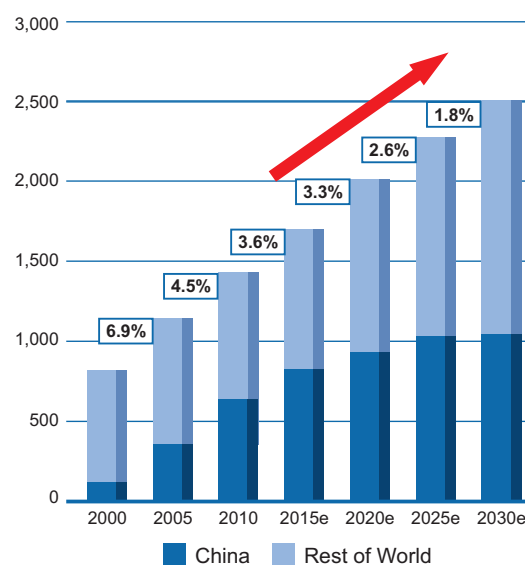
## Supply/ Demand History

Global demand for manganese has been increasing at a higher rate than crude steel production over the 12 year period 2000 to 2012, period driven by two factors.

1. Consumption of manganese per tonne of steel increased from 0.69% to 0.75% over the period
2. Steel demand has been increasing steadily by +5.2% per annum during the period.

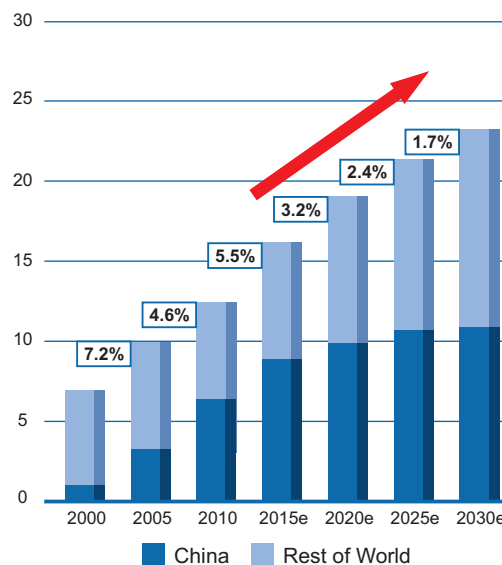
### Demand Projections

**Global steel production**  
(million tonnes)



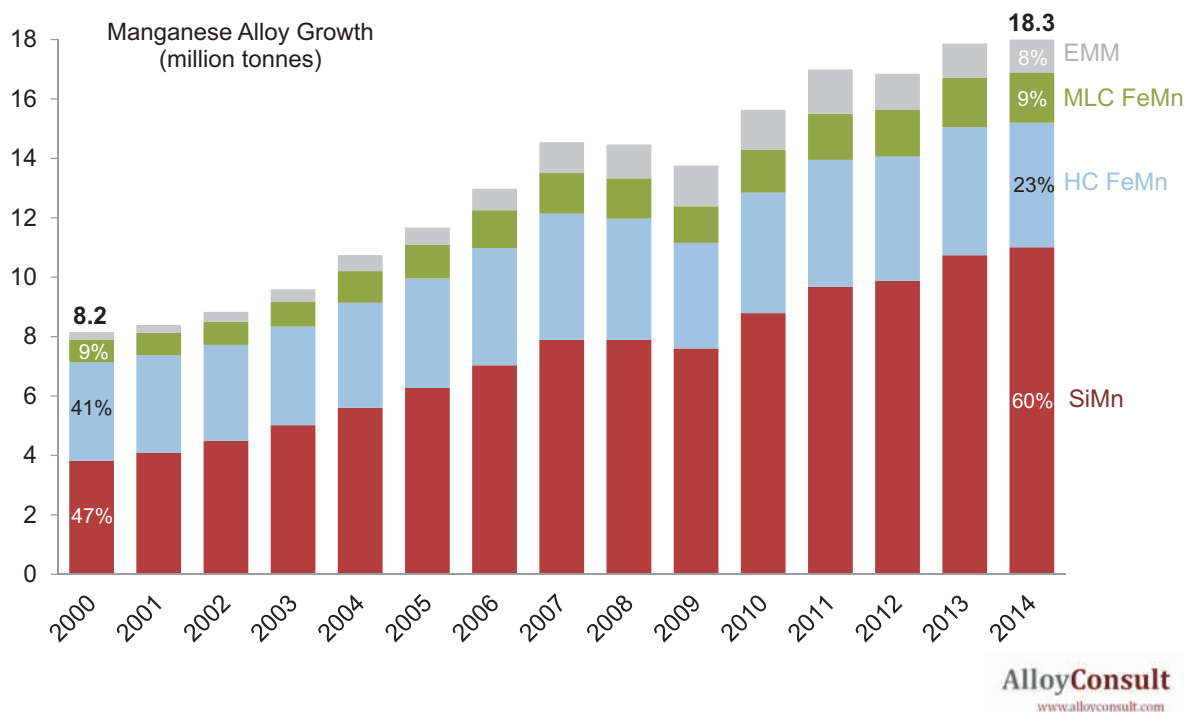
Source: BHP Billiton, World Steel Association

**Global manganese ore in alloys**  
(million tonnes, contained Mn)

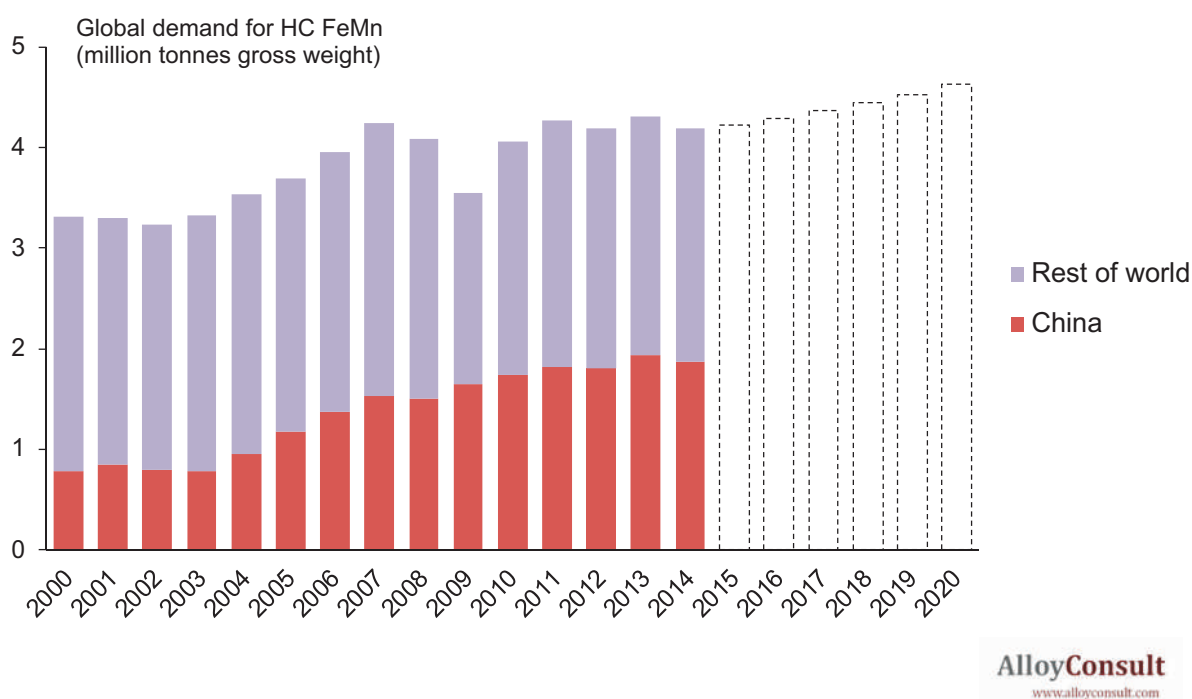


Source: BHP Billiton, IMnI, CRU

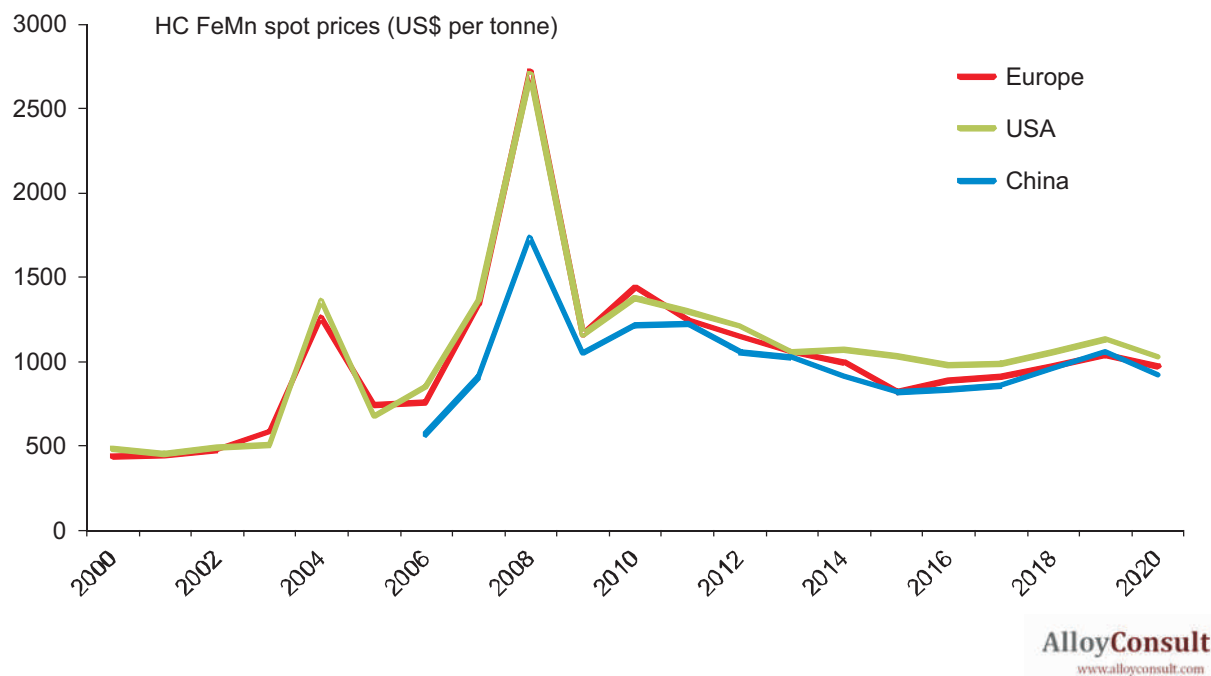
## Manganese Alloy Growth



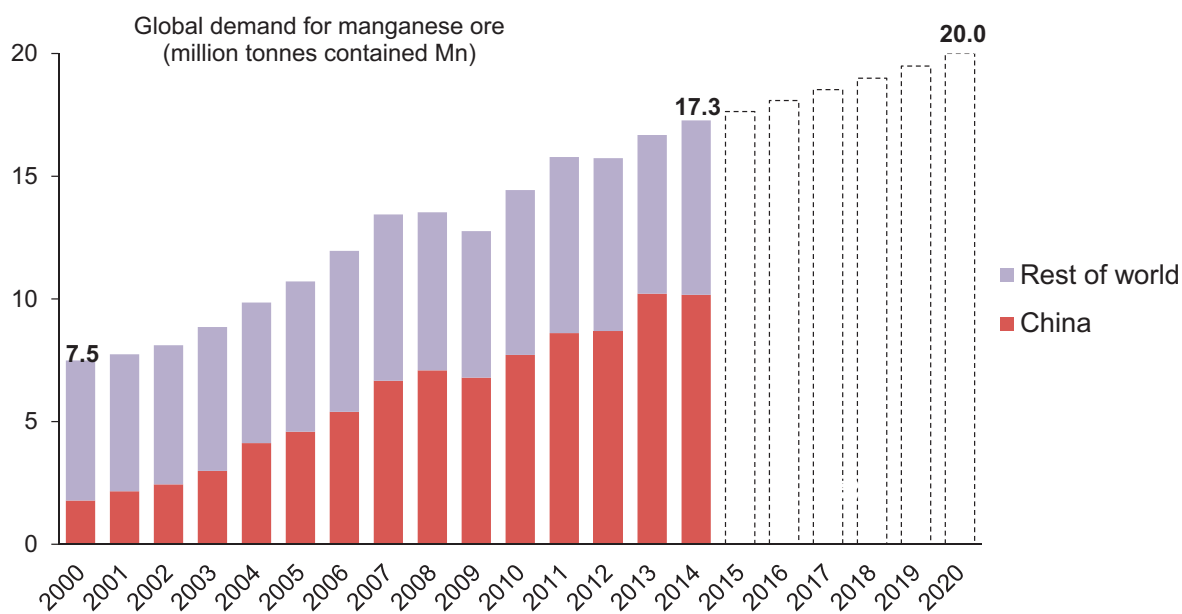
## Forecast FeMn Alloy Growth



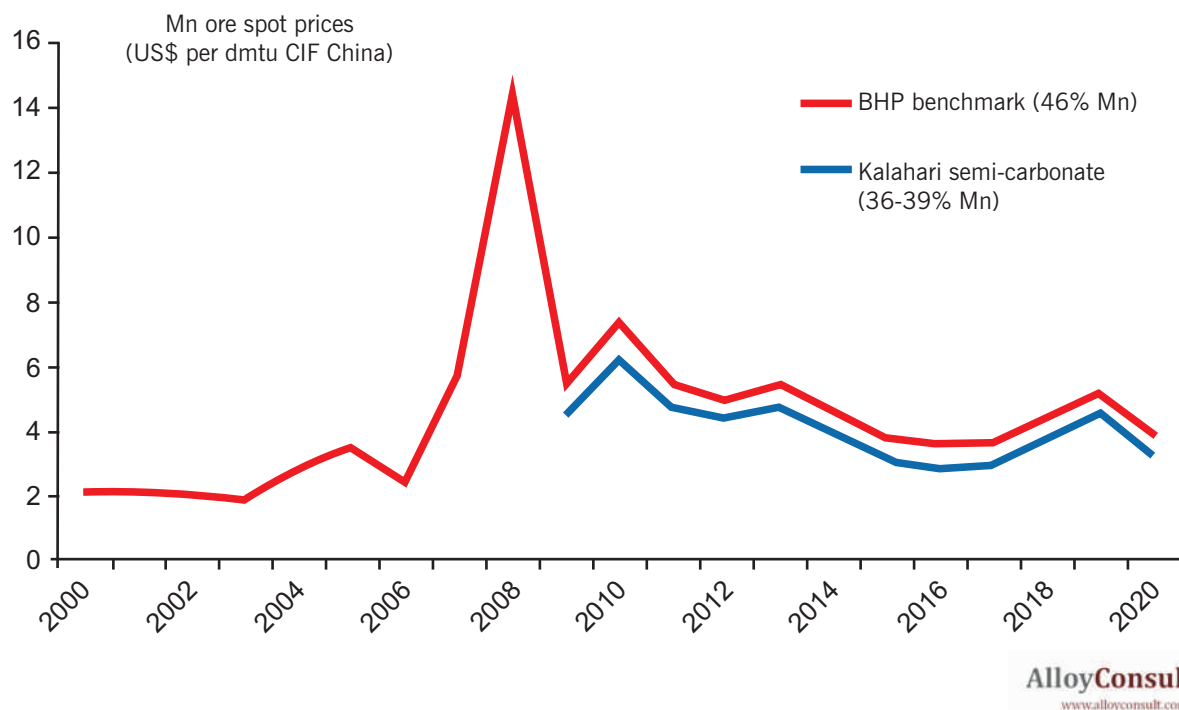
## Forecast HC FeMn prices



## Forecast Manganese Ore Growth



## Forecast Manganese Ore Prices



## Manganese Ore Vs Ferromanganese Alloy

Manganese ores are generally upgraded Run of Mine (as mined) material that has been upgraded by a beneficiation process to remove gangue materials. The gangue or waste materials are typically clay and/or other silicates and these can easily be removed using one of a number of gravity separation techniques.

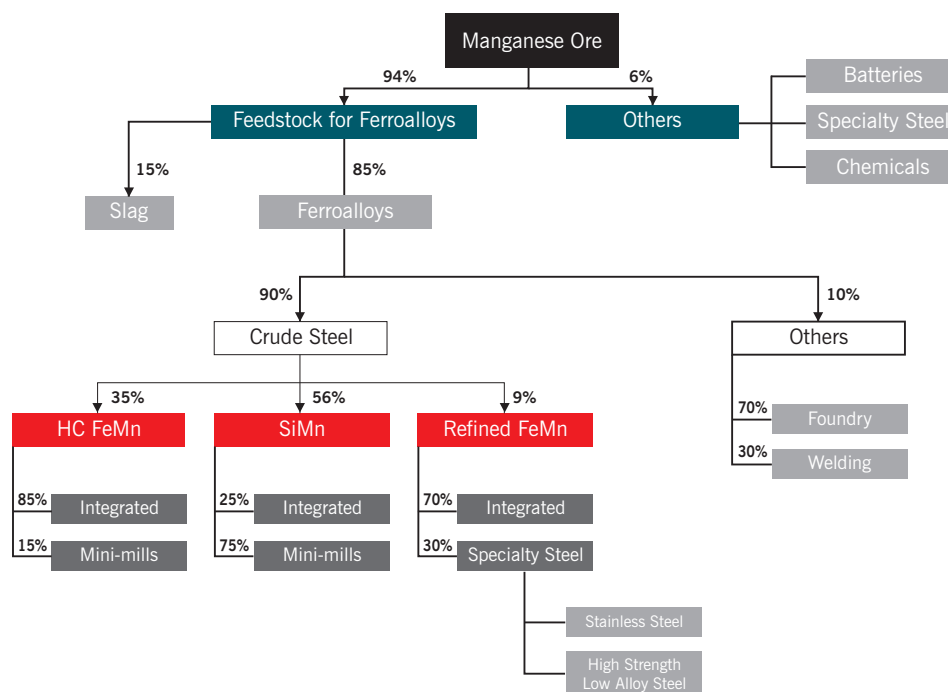
Manganese ores comprise manganese oxides, typically  $Mn_2O_3$  and  $MnO_2$  in various grades between low grade 25-35%Mn, medium grade 35-44%Mn and high grade +44%Mn. The remainder of the manganese ores composition is typically iron as  $Fe_2O_3$ , Silica as  $SiO_2$  and aluminium as  $Al_2O_3$ . Manganese ores can be delivered as either manganese lump +6mm-100mm, manganese chip +3- 6mm or manganese sands +1-3mm depending on customer requirements and final use.

Manganese alloys are typically refined via smelting and can therefore remove iron and other impurities. Two main types of manganese alloys exist being ferromanganese or Silico Manganese alloys. Ferromanganese alloys typically are sold at approx. 75-78%Mn content.



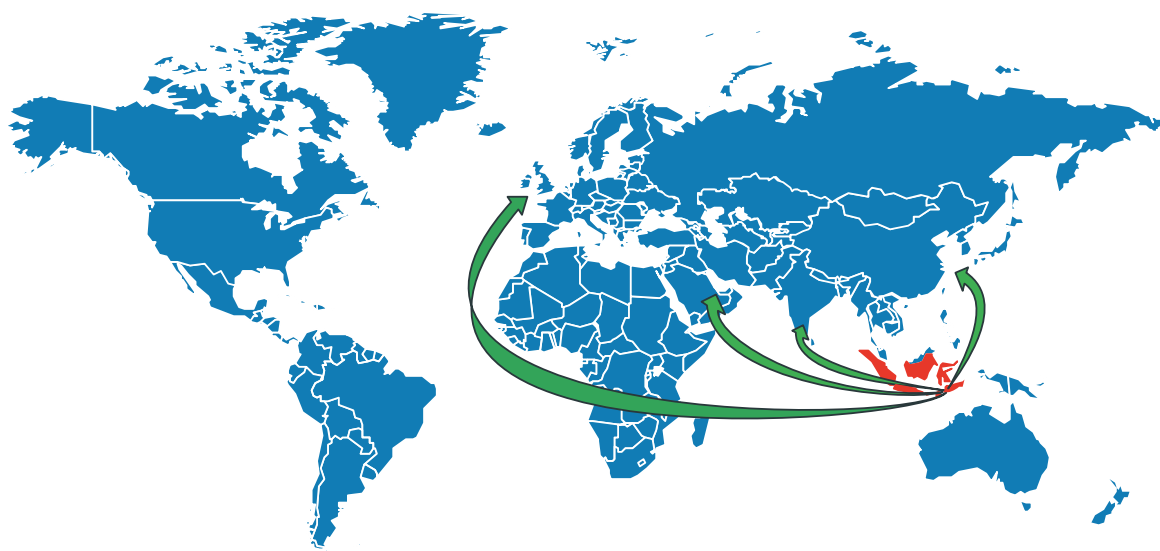
## Markets

### Manganese Market Material Flow



High carbon ferromanganese Alloy (Mn 70-82%) is used in manufacturing normal, low/medium carbon and high-carbon steel. On average 9.71kg of manganese alloy is used in making one tonne of steel. Manganese alloy used per tonne of steel tends to vary across region with Europe accounting for as low as 8.51kg per tonne of steel and China for more than 10.5kg per tonne.

### GMC Marketing Network



GMC's manganese business in Timor is ideally located to take advantage of its proximity to both manganese ore sources in Indonesia and Africa as well as proximity to the major consumer markets in Asia.

# 8 Indonesia

## Overview

Indonesia is the world's fourth most populous democracy with 248 million people, including the world's largest Muslim population. The archipelago consists of more than 17,500 islands of which 6,000 are inhabited, covering 2 million square kilometres - about a quarter the size of Australia. The country comprises 34 provinces, 510 regencies, 6,793 districts and 79,075 villages.

## Background

Republican forces led by Governor Sukarno declared independence from the Netherlands in 1945 after 3 centuries of Dutch rule. Economic collapse and political conflict prompted the army, led by General Suharto, to replace Sukarno and take power in 1967. Suharto oversaw 3 decades of authoritarian government before resigning in 1998 amid an economic and social crisis. Indonesia then experienced a time of far reaching political reform, known locally as "Reformansi" period, which ushered in a more democratic government including direct presidential elections.

The July 2014 Presidential elections were won by the popular and successful, Jakarta Governor, Joko "Jokowi" Widodo who is viewed as a progressive "man of the people" to guide Indonesia's future.

## Political Structure

In 2004, the President and Vice-President were directly elected for the first time. The directly elected People's Consultative Assembly now comprises 560-member House of Representatives (the legislature) and the 136-member Regional Representatives Council.

## Policy Issues

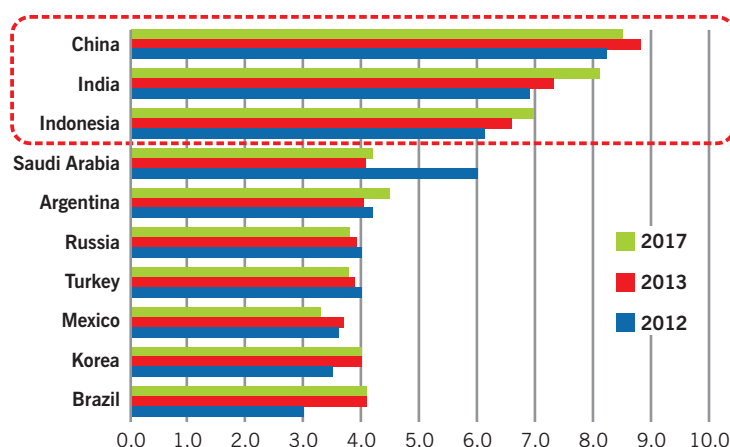
The Indonesian government has given high priority to boosting investment and economic and social development. It has introduced strategies to streamline investment, introduce tax incentives and address corruption issues, which have deterred investment.

## Economy

Indonesia is an emerging global powerhouse in Asia. Indonesia's Investment Coordinating Board BKPM put the country's economic growth at 5.7% in 2013, making it "The World's Most Stable Economy in the past five years" according to The Economist Magazine. Analysts expect Indonesia's GDP growth to continue between 5-6% until at least 2030.

The country's debt to GDP ratio has steadily declined from 83% in 2001 to less than 26% at the end of 2013, the lowest among ASEAN countries, BKPM states. In May 2013, ratings agency Standard & Poors affirmed Indonesia's sovereign credit rating at BB+ level for long-term, a notch below investment grade. The rating reflects Indonesia's resilience to the global financial crisis, improving government controls and the ability to manage challenges to a reform agenda.

Nominal GDP Growth Projections by IMF



The IMF projects Indonesia will be at the top 3 fastest economic growths among G20 countries

International Monetary Fund;  
World Economic Outlook Database April 2012

## Taxation

A 10% Value-Added Tax (VAT) is levied on most goods and services and a special sales tax ranging from 10-75% imposed on luxury items. The corporate tax rate is 25%.

Indonesia offers a number of investment incentives including import duty, tax allowances and tax holidays.

## West Timor

West Timor is the western Indonesian portion of the island of Timor and part of the Province of East Nusa Tenggara with a land area of 15,850 square kilometres and highest point Mount Musa at 2,427 metres.

The temperatures are consistent throughout the year ranging from average maximum of 32°C and minimum 23°C. Average rainfall is 1500mm per annum predominantly from November to March/April.

The province consists of 5 Regencies (Kabupatens) with a population of just under 1.8 million people, 92% Christian and 8% Muslim. Unemployment is estimated at 80% with the average wage of US\$ 150 per month. The current main industry is agriculture consisting of corn, rice, coffee, copra and fruit.

### Location of Proposed Smelter from Kupang



## Doing Business in Indonesia

As the fourth most populous country in the world, supported by good political and economic stability, Indonesia's large domestic market offers a wide range of investment opportunities for foreign and domestic investors. With a target economic growth of more than 6% for the coming years, there is a growing emphasis for the Government of Indonesia on attracting more foreign investment in order for the overall investment to reach the projected levels of Indonesian Rupiah (IDR) 2,000 trillion, or approximately US\$ 200 billion. For the last 10 years the Government of Indonesia has been actively introducing measures directed at encouraging investing in Indonesia and improving the country's regulatory and economic environment.

Indonesia is one of the world's leading emerging economies, and the third-fastest growing economy in Asia. It is also the largest economy in Southeast Asia, supported by:

- GDP of more than US\$ 800 billion in 2013, and forecast to grow by 6.1% in 2015.
- Strong domestic consumption.
- Strong Trade and investment flows, including intra-regional flows.
- An Investor-friendly government.
- An abundance of natural resources.
- An ample and increasingly talented work force, underpinned by the world's fourth-largest population by country.



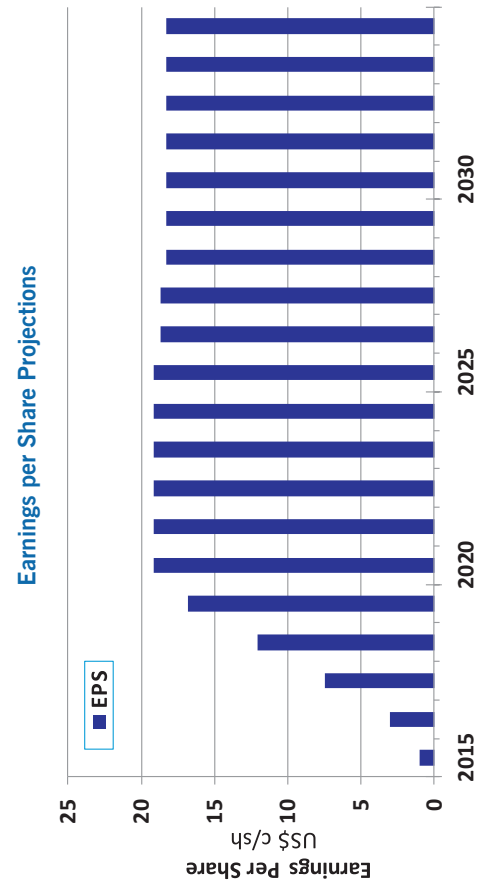
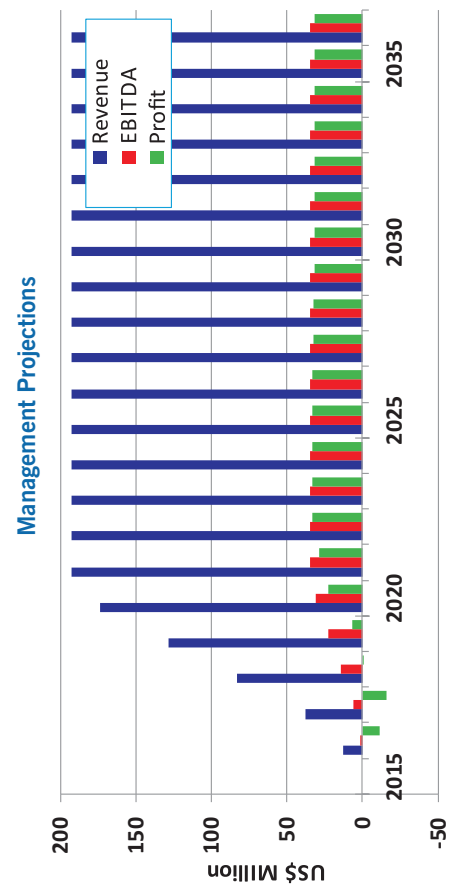
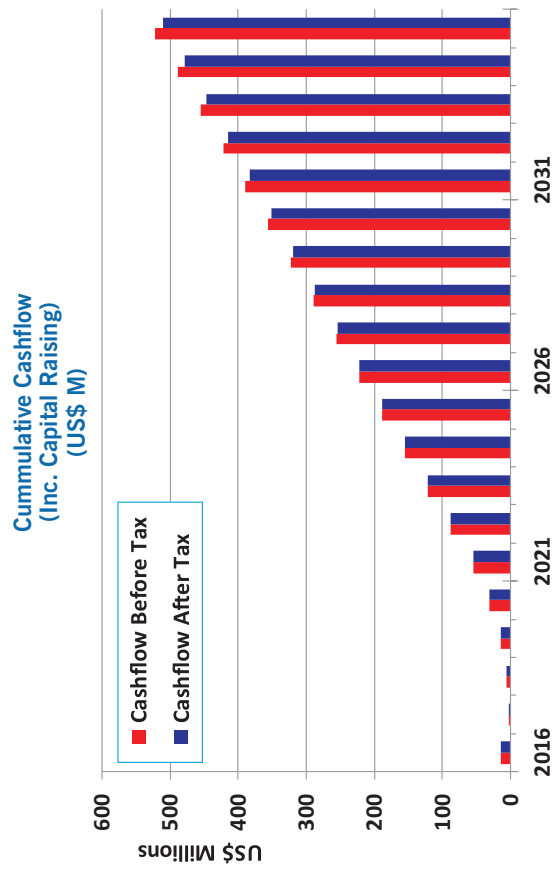
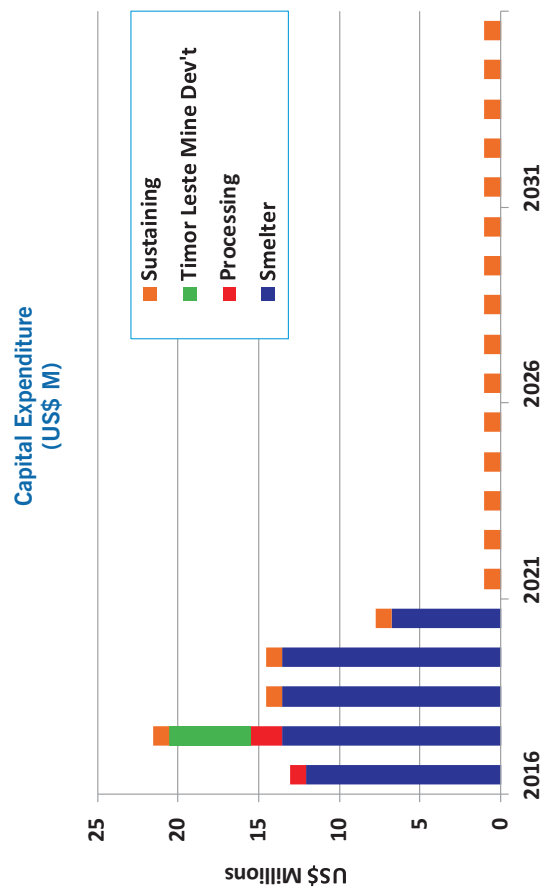


Model Dashboard			Gulf Manganese Corporation Limited											
Business Model			GULF MANGANESE CORPORATION LIMITED											
Timor Smelting Study														
Summary			KPI	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Scenario: Pioneer Industry														
Physicals														
Mn Ore Purchased	t		66,667	139,566	252,030	364,494	476,959	516,524	516,524	516,524	516,524	516,524	516,524	516,524
Mn Lump Sold	t		60,000	90,000	120,000	150,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000
Smelter Feed	t		-	36,522	109,566	182,610	255,654	292,176	292,176	292,176	292,176	292,176	292,176	292,176
FeMn Alloy Sold	t		-	18,000	54,000	90,000	126,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000
Project Life	Yrs		20	20	20	20	20	20	20	20	20	20	20	-
Revenue														
Total Revenue (Nett)	US\$		12.6	38.0	83.4	128.6	173.7	193.1	193.1	193.1	193.1	193.1	193.1	193.1
Costs														
Ore Purchase	US\$ M		-	1.4	4.1	6.8	9.6	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Processing	US\$ M		10.9	16.8	23.6	30.4	37.2	37.9	37.9	37.9	37.9	37.9	37.9	37.9
Smelting	US\$ M		-	15.2	45.4	75.5	105.7	120.7	120.7	120.7	120.7	120.7	120.7	120.7
Total Op Costs	US\$ M		10.9	33.4	73.1	112.7	152.4	169.6	169.6	169.6	169.6	169.6	169.6	169.6
Start-up Capex	US\$ M		13.1	20.6	13.6	13.6	6.8	-	-	-	-	-	-	-
Sustaining Capex	US\$ M		-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Unit Operating Cost														
Total Cost / Tonne Alloy	US\$/t	839	-	846	840	839	839	839	839	839	839	839	839	839
Cash Flow														
IPO / Capital Raising	US\$ M		25.0	5.0	-	-	(5.0)	-	-	-	-	-	-	-
EBITDA	US\$ M		1.8	5.5	13.5	21.7	30.3	34.4	34.4	34.4	34.4	34.4	34.4	34.4
Pre-tax Cash Flow	US\$ M		(11.3)	(16.1)	(1.1)	7.1	22.5	28.4	33.4	33.4	33.4	33.4	33.4	33.4
Post-tax Cash Flow	US\$ M		(11.3)	(16.1)	(1.1)	7.1	22.5	28.4	33.4	33.4	33.4	33.4	33.4	33.4
NPV - Pre Tax	US\$ M	201.4												
NPV - Post Tax	US\$ M	197.5												
IRR	%	45.6%												

Timor Smelting Study														
Summary		Base case	Mn Price +10%	Mn Price -10%	Opex +10%	Opex -10%	Capex +10%	Capex -10%						
Scenario: Pioneer Industry														
Physicals		20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total	20 Yr Total						
Mn Ore Purchasd (Local)	kt	1,315	1,315	1,315	1,315	1,315	1,315	1,315						
Mn Ore Purchasd (Foreign)	kt	8,249	8,249	8,249	8,249	8,249	8,249	8,249						
Mn Lump Sold	kt	3,480	3,480	3,480	3,480	3,480	3,480	3,480						
FeMn Alloy Sold	kt	2,592	2,592	2,592	2,592	2,592	2,592	2,592						
Project Life	Yrs	20	20	20	20	20	20	20						
Revenue														
Mn Lump Sales	US\$M	674.1	741.5	606.7	674.1	674.1	674.1	674.1						
FeMn Alloy Sales	US\$M	2,851.2	3,136.3	2,566.1	2,851.2	2,851.2	2,851.2	2,851.2						
Total Revenue	US\$M	3,525.3	3,877.8	3,172.8	3,525.3	3,525.3	3,525.3	3,525.3						
Costs														
Ore Purchases O/S	US\$M	-	-	-	-	-	-	-						
Processing	US\$M	1,237.5	1,245.3	1,229.6	1,361.2	1,113.7	1,237.5	1,237.5						
Smelting	US\$M	2,173.8	2,199.5	2,148.1	2,391.2	1,956.4	2,177.1	2,170.6						
Total Op Costs	US\$M	3,411.3	3,444.8	3,377.8	3,752.4	3,070.1	3,414.5	3,408.0						
Startup Capex	US\$M	62.5	62.5	62.5	62.5	62.5	68.8	56.3						
Sustaining Capex	US\$M	5.0	5.0	5.0	5.0	5.0	5.5	4.5						
EBITDA	US\$M	623.8	942.9	304.8	334.0	913.7	620.6	627.1						
Pre-tax metrics														
Pre-tax NPV @8% DCF	US\$M	201.4	341.1	61.6	74.3	328.5	193.3	209.5						
Pre-tax IRR	%	46%	73%	20%	22%	71%	41%	51%						
Post tax metrics														
Post-tax NPV @8% DCF	US\$M	197.5	326.0	61.6	74.3	312.5	189.6	205.5						
Post-tax IRR	%	46%	73%	20%	22%	71%	41%	51%						
Active Case		✓												
Best / Worst Case			✓	✗										



Active Scenario - Pioneer Industry





Financial Model											
Gulf Manganese Corporation Limited											
Business Model											
Active Case = Pioneer Industry											
Units											
Total (20 Yr)											
2015											
2016											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											
2026											
Revenue											
Manganese Ore											
Mn Ore Prices	US\$/t	225	225	225	225	225	225	225	225	225	225
Mn Lump Sales	US\$	-	13,500,000	20,250,000	27,000,000	40,500,000	40,500,000	40,500,000	40,500,000	40,500,000	40,500,000
Mn Ore Export Tax	%	-	-	308,154	-	-	-	-	-	-	-
Royalties	%	-	877,500	1,716,851	2,956,802	5,436,705	5,837,306	5,837,306	5,837,306	5,837,306	5,837,306
Net Mn Sales	US\$	-	12,622,500	18,224,995	24,043,198	35,063,295	34,662,695	34,662,695	34,662,695	34,662,695	34,662,695
Manganese Alloy											
Mn Alloy Prices	US\$/t	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Mn Alloy Sales	US\$	-	-	19,800,000	59,400,000	138,600,000	158,400,000	158,400,000	158,400,000	158,400,000	158,400,000
Net Mn Sales	US\$	-	-	19,800,000	59,400,000	138,600,000	158,400,000	158,400,000	158,400,000	158,400,000	158,400,000
Total Revenue	US\$	-	12,622,500	38,024,995	83,443,198	173,663,295	193,062,695	193,062,695	193,062,695	193,062,695	193,062,695
Operating Costs											
Mn Separation Plant											
Ore Purchase	US\$/t Proc	100.00	13,043,500	22,463,833	31,884,167	41,304,500	44,348,000	44,348,000	44,348,000	44,348,000	44,348,000
Beneficiation	US\$/t Proc	12.50	833,333	2,527,181	3,586,969	4,646,756	4,989,150	4,989,150	4,989,150	4,989,150	4,989,150
Salaries & Wages	US\$/t Proc	2.50	166,667	293,479	505,436	717,394	997,830	997,830	997,830	997,830	997,830
Laboratory	US\$/t Proc	5.00	333,333	586,958	1,010,873	1,434,788	1,995,660	1,995,660	1,995,660	1,995,660	1,995,660
Ship Loading	US\$/Solid	7.50	450,000	880,436	1,516,309	2,152,181	2,993,490	2,993,490	2,993,490	2,993,490	2,993,490
Logistics to Port	US\$/Solid	7.50	450,000	880,436	1,516,309	2,152,181	2,993,490	2,993,490	2,993,490	2,993,490	2,993,490
Logistics	US\$/Solid	10.00	600,000	1,173,915	2,021,745	2,869,575	3,991,320	3,991,320	3,991,320	3,991,320	3,991,320
Over Heads	%	10.00	78,300,000	2,025,000	2,700,000	3,375,000	4,050,000	4,050,000	4,050,000	4,050,000	4,050,000
Subtotal	US\$	-	1,237,460,920	20,351,118	34,261,685	48,172,254	66,358,940	66,358,940	66,358,940	66,358,940	66,358,940
Subtotal Smelter Feed	US\$	-	512,768,880	3,560,895	10,682,685	17,804,475	28,487,160	28,487,160	28,487,160	28,487,160	28,487,160
Smelter											
Ore Purchase (Local)	US\$	512,768,880	-	-	10,682,685	17,804,475	24,926,265	28,487,160	28,487,160	28,487,160	28,487,160
Ore Purchase (Overseas)	US\$	197,218,800	-	-	4,108,725	6,847,875	9,587,025	10,956,600	10,956,600	10,956,600	10,956,600
Coal	US\$	215,213,760	-	-	4,483,620	7,472,700	10,461,780	11,956,320	11,956,320	11,956,320	11,956,320
Limestone	US\$	17,470,080	-	-	363,960	606,600	849,240	970,560	970,560	970,560	970,560
Salaries/Wages	US\$	57,000	-	-	3,078,000	5,130,000	7,182,000	8,208,000	8,208,000	8,208,000	8,208,000
Power	US\$	278,000	-	-	15,012,000	25,020,000	35,028,000	40,032,000	40,032,000	40,032,000	40,032,000
Smelter Consumables	US\$	31,104,000	-	-	648,000	1,080,000	1,512,000	1,728,000	1,728,000	1,728,000	1,728,000
Logistics	US\$	25,920,000	-	-	540,000	900,000	1,260,000	1,440,000	1,440,000	1,440,000	1,440,000
Maintenance	US\$	32,463,360	-	-	788,510	1,175,480	1,582,470	1,785,960	1,785,960	1,785,960	1,785,960
Insurance	US\$	2,500	-	-	135,000	225,000	315,000	360,000	360,000	360,000	360,000
Fuels/Oils	US\$	1,944,000	-	-	40,500	67,500	94,500	108,000	108,000	108,000	108,000
Environmental	US\$	8,294,400	-	-	172,800	288,000	403,200	460,800	460,800	460,800	460,800
Overheads (Site)	US\$	114,048,000	-	-	2,376,000	3,960,000	5,544,000	6,336,000	6,336,000	6,336,000	6,336,000
Overheads (Corporate)	US\$	142,560,000	-	-	2,970,000	4,950,000	6,930,000	7,920,000	7,920,000	7,920,000	7,920,000
Subtotal	US\$	2,173,805,280	-	-	45,379,800	75,527,640	105,675,480	120,749,400	120,749,400	120,749,400	120,749,400
Unit Operating cost	US\$/t	839	-	-	840	839	839	839	839	839	839
Total Operating Costs	US\$	2,173,805,280	-	-	45,379,800	75,527,640	105,675,480	120,749,400	120,749,400	120,749,400	120,749,400
Operating Cashflow											
Operating Cashflow	US\$	626,813,027	-	1,772,500	14,484,397	22,657,827	30,831,258	34,441,515	34,441,515	34,441,515	34,441,515



Financial Model		GULF MANGANESE CORPORATION LIMITED												
Business Model		Active Case = Pioneer Industry												
	Units	Total (20 Yr)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Capital Summary														
Capital														
Ore Supply	US\$	-	-	-	-	-	-	-	-	-	-	-	-	-
Separation Plant	US\$	3,000,000	-	1,000,000	2,000,000	-	-	-	-	-	-	-	-	-
Smelter	US\$	59,532,000	-	12,051,000	-	13,566,000	13,566,000	6,783,000	-	-	-	-	-	-
Timor Leste Mine Devt	US\$	5,000,000	-	-	5,000,000	-	-	-	-	-	-	-	-	-
Sustaining capital	US\$	20,000,000	-	-	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Total	US\$	87,532,000	-	13,051,000	21,566,000	14,566,000	14,566,000	7,783,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Funding														
IPO	US\$	25,000,000	-	25,000,000	-	-	-	-	-	-	-	-	-	-
Loans	US\$	-	-	-	5,000,000	5,000,000	-	(5,000,000)	-	-	-	-	-	-
Interest on Loans	US\$	3,000,000	-	-	500,000	1,000,000	1,000,000	500,000	-	-	-	-	-	-
Evaluation Cashflows														
Before Tax														
EBITDA	US\$	623,813,027	-	1,772,500	5,502,812	13,484,397	21,657,827	30,331,258	34,441,515	34,441,515	34,441,515	34,441,515	34,441,515	34,441,515
Nett Cashflow before Tax	US\$	531,281,027	-	(11,278,500)	(16,063,188)	(1,081,603)	7,091,827	22,548,258	28,441,515	33,441,515	33,441,515	33,441,515	33,441,515	33,441,515
Discounted Nett Cashflow before Tax	US\$	201,391,809	-	(10,852,742)	(14,311,861)	(892,295)	5,417,202	15,947,995	18,626,106	20,278,299	18,776,203	17,385,373	16,097,568	14,905,155
NPV	US\$	201,391,809	-	-	-	-	-	-	-	-	-	-	-	-
NPV 20 Years	US\$	101,377,003	-	-	-	-	-	-	-	-	-	-	-	-
NPV 10 Years	US\$	101,377,003	-	-	-	-	-	-	-	-	-	-	-	-
NPV 5 Years	US\$	13,934,405	-	-	-	-	-	-	-	-	-	-	-	-
IRR	US\$	45.6%	-	-	-	-	-	-	-	-	-	-	-	-
Cumm. Nett Cashflow before Tax	US\$	-	-	13,721,500	2,658,312	6,576,710	13,668,537	31,216,795	54,658,309	88,099,824	121,541,338	154,982,853	188,424,367	221,865,882
Post Tax														
Nett Cashflow before Tax	US\$	531,281,027	-	(11,278,500)	(16,063,188)	(1,081,603)	7,091,827	22,548,258	28,441,515	33,441,515	33,441,515	33,441,515	33,441,515	33,441,515
Tax Paid	US\$	(14,885,886)	-	-	-	-	-	-	-	-	-	-	-	-
Nett Cashflow after Tax	US\$	516,395,140	-	(11,278,500)	(16,063,188)	(1,081,603)	7,091,827	22,548,258	28,441,515	33,441,515	33,441,515	33,441,515	33,441,515	33,441,515
Discounted Nett Cashflow after Tax	US\$	197,531,407	-	(10,852,742)	(14,311,861)	(892,295)	5,417,202	15,947,995	18,626,106	20,278,299	18,776,203	17,385,373	16,097,568	14,905,155
NPV	US\$	197,531,407	-	-	-	-	-	-	-	-	-	-	-	-
NPV 20 Years	US\$	101,377,003	-	-	-	-	-	-	-	-	-	-	-	-
NPV 10 Years	US\$	101,377,003	-	-	-	-	-	-	-	-	-	-	-	-
NPV 5 Years	US\$	13,934,405	-	-	-	-	-	-	-	-	-	-	-	-
IRR	US\$	45.5%	-	-	-	-	-	-	-	-	-	-	-	-
Cumm Nett Total Cashflow After Tax	US\$	-	-	13,721,500	2,658,312	6,576,710	13,668,537	31,216,795	54,658,309	88,099,824	121,541,338	154,982,853	188,424,367	221,865,882
Equity														
Nett Income	US\$	610,415,729	-	1,772,500	5,502,812	13,484,397	21,657,827	30,331,258	34,441,515	34,441,515	34,441,515	34,441,515	34,441,515	34,441,515
Shares on Issue	US\$	80,000,000	-	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000	180,000,000
Earnings per Share	US c/sh	-	-	1.0	3.1	7.5	12.0	16.9	19.1	19.1	19.1	19.1	19.1	19.1

## Appendix B - Tax Regulations

### Tax Holiday

#### Tax Holiday Regulation of The MoF No. 130/PMK.011/2011

##### Facility

- A taxpayer can be granted a tax relief facility for a period of between 5 and 10 years, starting from the commencement of its commercial production.
- After the expiration of the tax holiday, the taxpayer will be entitled to an income tax reduction of 50% for a further 2 years.
- By considering the purpose of maintaining the competitiveness of national industries and the strategic value of certain business activities, the duration of the tax relief and reduction can be extended based on a decision by the Minister of Finance.

##### Criteria

- Constituting a pioneer industry:
  - Basic metal industries;
  - Oil refinery industries and/or basic organic chemicals originating from oil and natural gas;
  - Machinery industries;
  - Industries in the field of renewable resources;
  - Communication devices industries.
- Having a new investment plan having obtained the approval of competent authorities in a minimum amount of IDR 1 trillion (USD 100 million).

### Incentives

#### Import Duties

All investment projects of PMA as well as PMDN projects which are approved by the Investment Coordinating Board or by the Office of Investment in the respective districts, including existing PMA and PMDN companies expanding their projects to produce similar product(s) in excess of 30% of installed capacities or diversifying their products, will be granted the following facilities:

- Relief from import duty so that the final tariffs become 0 %. Import duty which are mentioned in the Indonesian Customs Tariff Book. (BTBMI). This is stipulated in the Ministry of Finance's Decree No. 176/PMK.011/2009 dated November 16, 2009 which is effective from December 2009.
  - On the importation of capital goods namely machinery, equipments, spare parts and auxiliary equipments for an import period of 2 (two) years, started from the date of stipulation of decisions on import duty relief.
  - On the importation of goods and materials or raw materials regardless of their types and composition, which are used as materials or components to produce finished goods or to produce services for the purpose of two years full production (accumulated production time).
  - However, the decree as above mentioned is not applied to the assembling of cars and motor bikes except for its component industries.
- Exemption from Transfer of Ownership Fee for ship registration deed / certificate made for the first time in Indonesia.

### **Tax Facilities**

- The government has introduced a Tax Bill No's 16, 17, 18, 19 and 20 of 2000 and applied since January 1, 2001. Based on this tax law, the domestic and foreign investors will be granted tax allowances in certain sector and/or area as follows:
  - An Investment Tax Allowance in the form of taxable income reduction as much as 30 % of the realized investment spread in 6 (six) years.
  - Accelerated depreciation and amortization.
  - A Loss carried forward facility for period of no more than 10 (ten) years.
  - A 10 % income tax on dividends, and possibly being lower if stipulated in the provisions of an existing particular tax treaty.
- The government has also introduced provisions No's 146 of 2000 of 2000 and 12 of 2001 on the importation and/or delivery of Selected Taxable Goods, and or the provision of Selected Taxable Services as well as the importation and or delivery of Selected Strategic Goods which are exempted from Value Added Tax.

### **Export Manufacturing**

There are many incentives provided for exporting manufacture products. Some of these incentives are as follows;

- Restitution (drawback) of import on the importation of goods and materials needed to manufacture the exported finished products.
- Exemption from Value Added Tax and Sales Tax on Luxury goods and materials purchased domestically, to be used in the manufacturing of the exported products.
- The company can import raw materials required regardless of the availability of comparable domestic products.

### **Bonded Zones**

- The industrial companies which are located in the bonded areas are provided with many incentives as follows;
  - Exemption from import duty, excise, income tax of Article 22, Value Added Tax on Luxury Goods on the importation of capital goods and equipment including raw materials for the production process.
  - Allowed to divert their products amounted to 50% of their export (in term of value) for the final
  - Allowed to sell scrap or waste to Indonesian custom area as long as it contains at the highest
  - Allowed to lend their own machineries and equipments to their subcontractors located outside
- Exemption of Value Added Tax and Sales Tax on Luxury Goods on the delivery of products for further processing from bonded zones to their subcontractors outside the bonded zones or the other way around as well as among companies in these areas.



## Value Added Tax and Sales Tax on Luxury Goods

In normal cases, 10% Value Added Tax (VAT) is applied to imports, manufactured goods and most services. In addition, there is also sales tax on luxury goods ranging from 10% to 75% (See Government Regulation No. 12/2001 jo. No. 43/2002 jo. 46/2003 and other related tax implementation regulations).

According to the government regulation No. 7 Year 2007;

### 1. Value Added Tax (VAT)

Free Charge of Value Added Tax (VAT) to the importation of certain VAT charged goods having the strategic term, consist of;

- a. Capital Goods in the form of machineries and factory equipments, either in installed or separated, including spare parts
- b. Feed of poultry and fish and raw materials to make feed
- c. Seed and or seeding of agricultural material, plantation, forestry, livestock, aquaculture, or fishery
- d. Agricultural products;

### 2. Free Charge of Value Added Tax Imposition (VAT)

Free charge of Value Added Tax (VAT) to the delivery of certain VAT charge goods having the strategic term, consist of;



- a. Capital goods in the form of machineries and factory equipment, either in installed or separated, excluding spare parts, which is directly needed to produce VAT charge products
- b. Feed of poultry and fish and or raw material to make the feed
- c. Seed and or seeding of agricultural material plantation, forestry, livestock, aquaculture, or fishery
- d. Agriculture products.



**TENTATIVE TIME SCHEDULE**  
**AMDAL DOCUMENT PREPARATION**  
**SMELTER CONSTRUCTION AT KUANHEUN AREA, KUPANG DISTRICT**  
**BY GULF MANGANESE CORPORATION LIMITED**

NO	DESCRIPTION OF ACTIVITY	MONTH IN 2015																			
		FIRST				SECOND				THIRD				FOURTH				FIFTH			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	SOCIALISING WITH LOCALS																				
2	FIELD VISIT WITH BLHD TECHNICAL TEAM																				
3	COLLECTING DATA ON THE LOCATION																				
4	LABORATORY ANALYSES																				
5	PREPARATION OF KA-ANDAL																				
6	PRESENTATION KA-ANDAL DOCUMENT																				
7	PERMISSION RECOMMENDATION OF KA-ANDAL																				
8	PREPARATION OF ANDAL, RKL AND RPL DOCUMENT																				
9	DOCUMENT ASSESSMENT BY BLHD																				
10	PRESENTATION OF ANDAL, RKL AND RPL DOCUMENT																				
11	FINAL REPORT OF ANDAL, RKL AND RPL DOCUMENT																				
12	PERMISSION RECOMMENDATION																				
13	ENVIRONMENTAL CLEARANCE																				



<div> GULF MANGANESE CORPORATION LIMITED</div> <div></div> <div>Capital Cost Estimate</div> <div>Client: Gulf Minerals Corporation</div> <div>Project: Ferromanganese Modular 6MVA Smelter</div>		Project Number	
		XRAM GULF/15/01	
		Estimate Date	
		02/05/2015 - Rev 4	
		Estimating	
		SM JJB	
		Sub Total	Total
1 Establishment Costs			\$ 2,385,889
1.1	Civil	\$ 803,185	
1.2	Structural	\$ 984,603	
1.3	Electrical	\$ 598,100	
2 Furnace Costs			\$ 6,783,508
2.1	Technology Package	\$ 4,436,960	
2.2	Mechanical	\$ 1,806,820	
2.3	Piping	\$ 408,510	
2.4	Controls	\$ 131,218	
3 EPCM Costs			\$ 1,788,953
3.1	XRAM	\$ 1,121,026	
3.2	Como	\$ 667,927	
4 Contingency			\$ 1,095,850
4.1	Allowance	\$ 1,095,850	
5 Total Costs			\$ 12,054,200



## Appendix E - Smelter Operating Costs

GULF MANGANESE CORPORATION LIMITED		OPEX MODEL (C1 NET DIRECT CASH COST) - 6 MVA FURNACE				REV 3	
		BASE CASE - DISCARD SLAG PRACTICE				4-May-15	
Model Basis:							
- Tapped Metal		14,389 tpa					
- Saleable Metal (3% unrecoverable losses)		14,066 tpa					
Item	Description	Units	Consumption t/t Saleable Alloy (Feed Wet Basis)	Unit Cost Cost USD/ton	Unit Delivery Cost to Plant US\$/ton	Total Cost US\$/ton Alloy (Saleable Alloy)	% Of Total Cost
VARIABLE OPERATING COSTS							
1	FEED MATERIALS (Dry Base)						
	Total Ore	t/t	2.029				
1.1	Indonesian Ore (52% Mn & 73% of ore feed)	t/t	1.482	\$125.00	\$5.00	\$192.60	
1.3	SA Ore (35% Mn & 27% of ore feed)	t/t	0.547	\$150.00	\$0.00	\$82.10	
	Total Reductant	t/t	0.874				
1.4	Met Coal	t/t	0.874	\$95.00	\$0.00	\$83.00	
	Total Fluxes	t/t	0.337				
1.5	Recirculation Slag	t/t	0.000	\$0.00	\$0.00	\$0.00	
1.6	Limestone (SGS Report)	t/t	0.337	\$20.00	\$0.00	\$6.74	
	Subtotal					\$364.44	43.40%
2	OTHER CONSUMEABLES						
2.1	Electrode paste	t/t	0.020	\$550.00	\$5.00	\$11.35	
2.2	Electrode casings	t/t	0.003	\$25.00		\$0.06	
2.3	Ladle Refractories	t/t	0.015	\$0.00		\$0.00	
2.4	Tap Hole Paste	t/t	0.002	\$250.00		\$0.51	
2.5	Tap Hole Drills & Bits	Unit/t	0.001	\$100.00		\$0.10	
2.6	Tap Hole Mickeys (Carbon)	Unit/t	0.001	\$600.00		\$0.31	
2.7	Oxygen Steel Lances & Prigger bars	t/t	0.001	\$50.00		\$0.05	
2.8	Oxygen	t/t	0.001	\$90.00		\$0.06	
2.9	Thermocouples & Pipes	t/t	0.001	\$0.00		\$0.10	
2.1	Potable Water	m³/t	0.679	\$0.13		\$0.09	
2.11	Process Water	m³/t	0.951	\$0.13		\$0.12	
2.12	Other Consumables	t/t	1.023	\$0.66		\$0.68	
2.13	Diesel (Materials Handling)	l/t	15.154	\$0.30		\$4.55	
2.14	Water Treatment (Chemical Additions)	t/t				\$0.11	
	Subtotal					\$18.09	2.15%
3	ENERGY						
3.1	Electric Power (Saleable product)	KWh/t	2785	\$0.095		\$264.58	
3.2	Auxillary Power	KWh/t	390	\$0.095		\$37.04	
	Subtotal					\$301.62	35.92%
TOTAL VARIABLE OPERATING COSTS						\$684.15	81.5%
FIXED OPERATING COSTS							
			Unit	Cost (USD\$/yr)			
4	LABOUR						
4.1	Management	\$/yr	8	\$192,000		\$13.65	
	Process Manager	\$/yr	1	\$125,000		\$8.89	
	Supervisors	\$/yr	15	\$180,000		\$12.80	
4.2	Labour	\$/yr	50	\$300,000		\$21.33	
	Subtotal	\$/yr	74	\$797,000		\$56.66	6.7%
5	VEHICLES						
5.1	Maintenance	\$/yr	6	\$36,000.00		\$2.56	
	Subtotal	\$/yr		\$36,000.00		\$2.56	0.3%
6	MAINTENANCE						
6.1	Direct Maintenance (2% of Capital)	\$/yr	2.0%	\$120,000		\$8.53	
6.2	Major Repairs (1% of Capital)	\$/yr	1.0%	\$60,000		\$4.27	
	Subtotal	\$/yr	0.5%	\$180,000		\$12.80	1.5%
7	OTHER COSTS						
7.1	Admin and Overhead Expenses	\$/yr		\$1,130,000		\$80.34	
	Subtotal	\$/yr		\$1,130,000		\$80.34	9.6%
8	Environmental						
8.1	Monitoring & Rehabilitation Provision	\$/yr		\$45,000		\$3.20	
	Subtotal	\$/yr		\$45,000		\$3.20	0.4%
TOTAL FIXED OPERATING COSTS						\$155.56	18.5%
C1 PRODUCTION COST - HCFEMn				\$11,810,975.07		\$839.70	
SALES PRICE - HCFEMn (CIF)				\$15,472,241.42		\$1,100.00	
M1 MARGIN				\$3,661,266.36		\$260.30	
REV		No/Date	B	4/05/2015			
PREPARED		By/Date	JJB	4/05/2015			
CHECKED		By/Date					
AUTH		Rv/Date					

XRAM

Technologies

Manganese Ore Feed Options

12-May-15  
Prepared by: JJB  
Rev2

1. Mass and energy balances were done to evalaute the following proposed ore recipes:

Options	Mn Content in Ore Grades			Unit Consumption t/t* (Dry Basis)		Unit Consumption t (wet*)/t Saleable Alloy		Annual ore consumption for F1 (6 MVA) tpa		Annual consumption for plant - 8 furnaces (Ore on a wet basis - tpa)			
	Indo Ore *	SA Ore *	Fe Ore *	Indo Ore	SA Ore	Indo Ore	SA Ore	Indo Ore	SA Ore	Indo Ore	SA Ore	Fe Ore	Total
Base Case	52%	35%	-	1.420	0.525	1.482	0.548	21,506	7,951	213,456	78,919	-	292,374
Option 1	53%	-	0.5%	1.742	-	1.818	-	26,382	-	261,859	-	30,665	292,524
Option 2	48%	35%	-	1.557	0.517	1.625	0.540	23,579	7,837	234,033	77,788	-	311,821
Option 3	46%	35%	-	1.636	0.513	1.708	0.536	24,774	7,775	245,897	77,173	-	323,071
Notes	* 1.23% Fe 25% Fe *			* 78% HCFeMn & Slag B=1.2, MnO=21%		* 2% Moisture		Saleable metal 14,508 tpa HCFeMn grade 78% Mn		Saleable metal 144,000 tpa HCFeMn grade 78% Mn			

2. Mn & Fe Balance check

Options	Mn Content in Ore Grades			Unit Consumption t/t* (Dry Basis)		Mn Check (t/t)		Fe Check (t/t)		Slag/Metal	
	Indo Ore *	SA Ore *	Fe Ore *	Indo Ore	SA Ore	In	Out	In	Out	In	Out
Base Case	52%	35%	-	1.420	0.525	0.922	0.922	0.152	0.153	0.152	0.720
Option 1	53%	-	0.5%	1.742	-	0.931	0.930	0.152	0.153	0.152	0.776
Option 2	48%	35%	-	1.557	0.517	0.928	0.929	0.152	0.153	0.152	0.761
Option 3	46%	35%	-	1.636	0.513	0.932	0.933	0.152	0.153	0.152	0.784
Notes	* 1.23% Fe 25% Fe *			* 78% HCFeMn & Slag B=1.2, MnO=21%		OK Due to slag volume		Ok		* Small variances in slag volume due to composition changes in ore	



DISCLAIMER

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## Appendix G - Metallurgical Coal Specifications

Stream Specification Sheet – Metallurgical Coal Nuts				Sheet 1 of 1
Stream Category	Raw Material	Plant Location	Kupang, Timor, Indonesia	
Stream Type	Feed to AC SAF	Flow Number		
Stream Description & Comments				
General Data				
Parameter	Units	Design	Range	Comment
Analysis (Dry Basis)				
Fixed Carbon	wt%	55	>50	
P	wt%	0.048	<0.06	
S	wt%	0.8	<0.90	
Ash content	wt%	18	<18	
Volatiles	wt%	25	20 - 40	
Moisture	wt%	4	<6	
Calorific Value	MJ/kg	26	>25	
	kcal/kg	6,208	> 5,970	
Ash Elemental Analysis (Dry Basis)				
FeO	wt%	4		
Al <sub>2</sub> O <sub>3</sub>	wt%	21		
SiO <sub>2</sub>	wt%	44		
CaO	wt%	9		
MgO	wt%	1.7		
Petrography				
Mean random reflectance	%	0.6	0.6 – 0.7	
Vitrinite	%	45	>40	
Inertinite	%	27		
Physical Properties				
CO gas reactivity	cm3 CO / (s*geoke)	2.3	>	
Physical Properties				
Specific Density	t/m3		-	
Bulk Density	t/m3	0.85	0.83- 0.95	
Angle of Repose	°	35		
Maximum Conveying Angles	°	24		
Particle Size Distribution				
Particle Size	mm		10 -65	
75 mm	% passing	100		
65 mm	% passing	90		
25 mm	% passing	25		
10 mm	% passing	5		

Rev	Date	Description	Approved Process	Approved Project	This document is the property of XRAM Technologies (Pty) Ltd and subject to confidentiality limitations.		 			
01	5/5/2015	For Information	JJB		Client	Gulf Manganese Corporation Limited				
					Project Title	Manganese Smelter Plant				
					Description	Metallurgical Coal Nuts				
					Document Number					
					Project No	Subdivision	Disc/Doc ID	No	Rev	
					15001	D1	00	0001	00	

## Appendix H - Cargo Movements Tenau Port

### Development Schedule

Year	No. Furnaces
2016	1
2017	3
2018	5
2019	7
2020	8

### Manganese Ore in Bulk (into Tenau)

Year	Barge(Wini/Atapupu)	South Africa
2016	30,000t	10,000t
2017	90,000t	30,000t
2018	150,000t	50,000t
2019	210,000t	70,000t
2020	220,000t	80,000t
Thereafter/Year	220,000t	80,000t

### Coal in Bulk (into Tenau for Smelter)

Year	Barge/Kalimantan
2016	16,000t
2017	50,000t
2018	80,000t
2019	110,000t
2020	125,000t
Thereafter/Year	125,000t

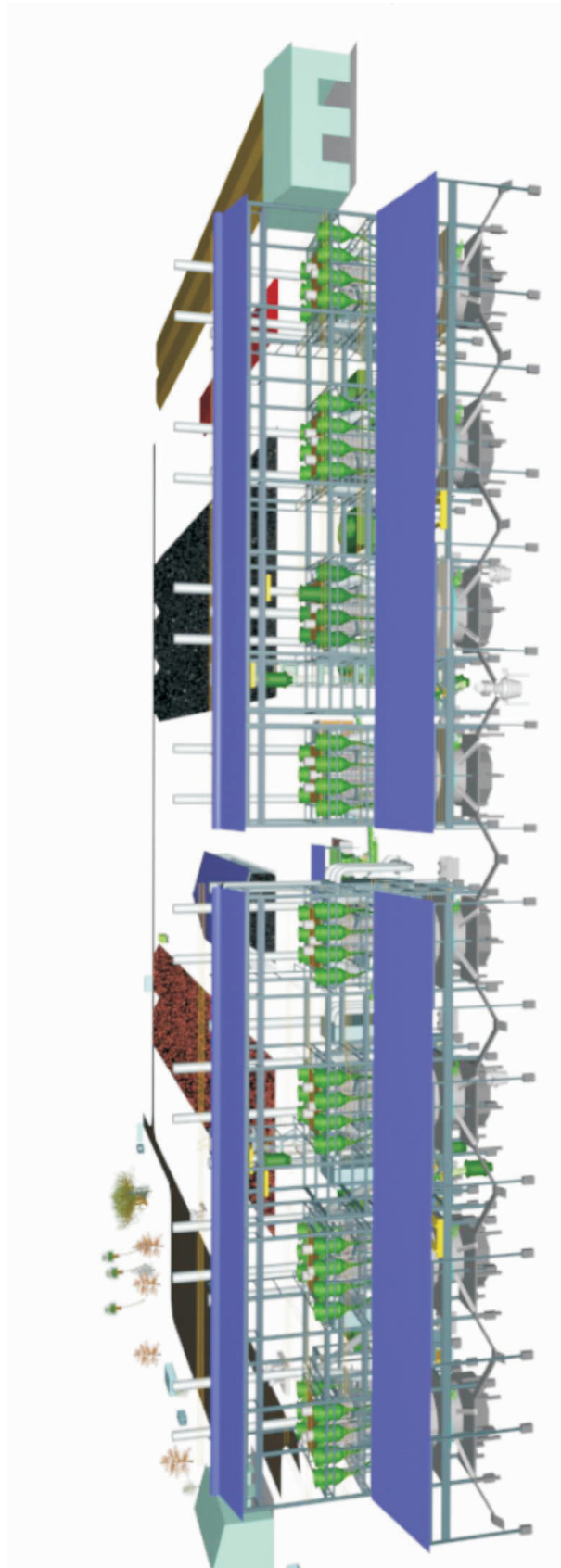
### Coal in Bulk (into Tenau for Power Plant)

Year	Barge/Kalimantan
2016	Nil
2017	90,000t
2018	150,000t
2019	210,000t
2020	240,000t
Thereafter/Year	240,000t

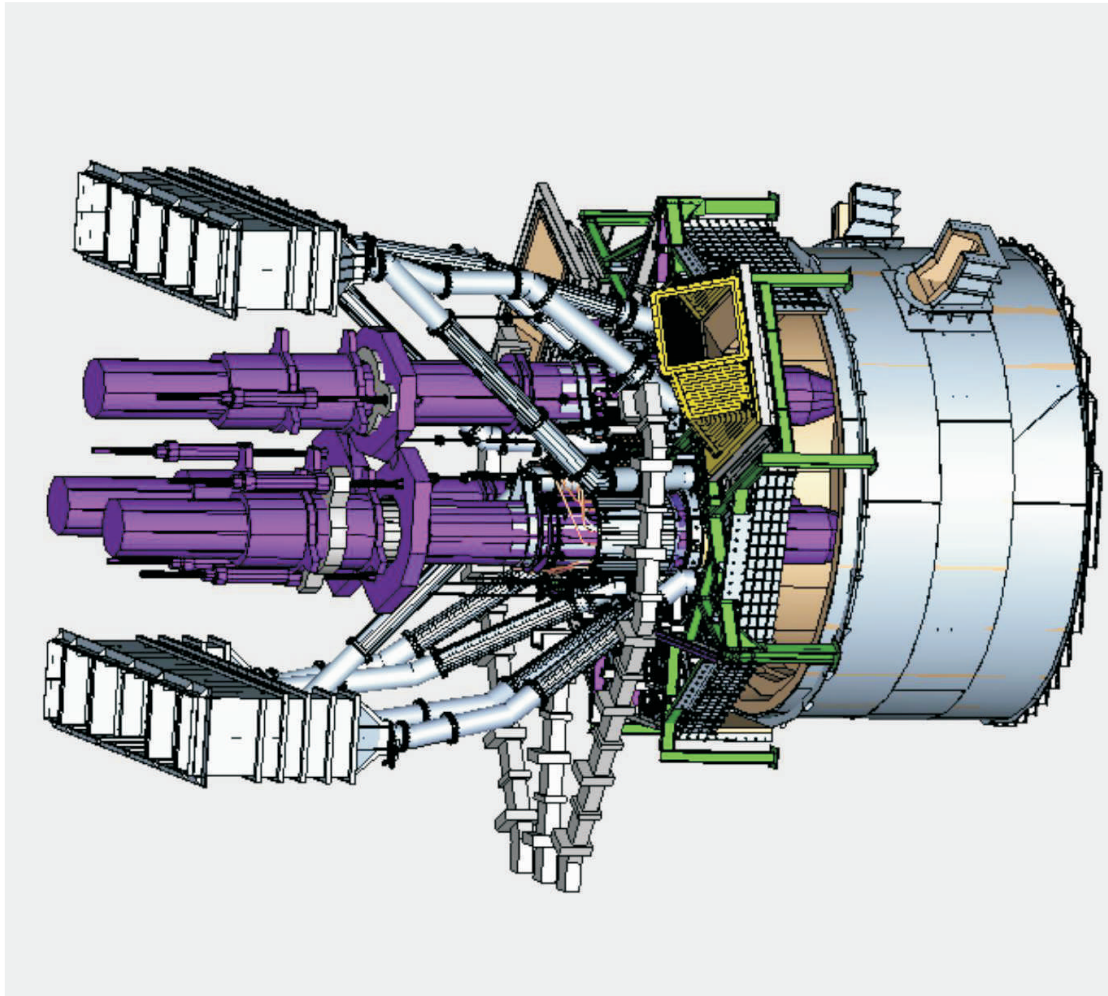
### Manganese Alloy in Containers (out of Tenau)

Year	Export	Containers
2016	18,000t	900
2017	54,000t	2,700
2018	90,000t	4,500
2019	126,000t	6,300
2020	144,000t	7,200
Thereafter/Year	144,000t	7,200

Complete Smelter - 8 Furnaces



## Furnace Model - General Arrangements



Semi-closed 6 MVA submerged arc furnace

## Appendix J - Gulf Manganese Corporation - Team

### Board



**Graham Anderson**  
*Executive Chairman*

Graham holds a Bachelor of Business and is a Chartered Accountant with more than 25 years' experience of commercial and corporate dealings with national chartered accounting firms in the auditing and independent expert reports. He has extensive experience and knowledge of the ASX listing rules and the Corporations Act.



**Dr. Peter Williams**  
*Non Executive Exploration Director*

Peter holds a PhD in structural geology and has a wide range of exploration experience in regional structural geology, particularly within Asia. Before retiring he was Managing Director of SRK Australia, one of the country's largest specialist geological consulting groups.



**Michael Walters**  
*Non Executive Marketing Director*

Michael is an engineer with 30 years' experience in the resources industry. Previously he worked with Billiton, Western Mining and Consolidated Minerals where he was part of the team that built CML into the world's 4th largest high grade manganese supplier. He is principal of his own mineral ore marketing business.



**Paul O'Shaughnessy**  
*Non Executive Metallurgical Director*

Paul is a metallurgical engineer with some 40 years of industry experience which includes smelting operations producing both bulk and speciality manganese alloys. He is a graduate from the Royal School of Mines, Imperial College, University of London with a Bachelor of Science Metallurgy with Honours. Paul now operates his own consulting business which includes advising on the manufacturing of ferro alloys.



## Management



**Michael Kiernan**

*Chairman - PT Gulf Mangan Grup*

Michael has spent 40 years in the mining and transport industries, most notably in the discovery, development and operations of manganese and iron ore. He holds a Bachelor of Business and previously built a resources group to become one of the ASX 200 resource companies.



**Leonard Math**

*Chief Financial Officer*

Leonard graduated from Edith Cowan University (Western Australia) with a Bachelor of Business majoring in Accounting and Information Systems and a member of the Institute of Chartered Accountants. He has worked with Deloitte as an auditor with public company experience in ASX and ASIC compliance and statutory financial reporting.



**Helen Halliday**

*Commercial Manager*

Helen previously worked for an investment banking group specialising in venture capital, corporate advisory and funds management and has a diploma of Financial Markets with the Securities Institute Australia. Her role as Administration Manager also included assisting company secretarial requirements in dealing with the ASX and ASIC together with control of documents covering a financial services licence.



**Jacques Beylefeld**

*Metallurgical Engineer - PT Gulf Mangan Grup*

Jacques is a metallurgical engineer with over 25 years' experience in the extractive pyrometallurgical environment and holds a Bachelor Engineering and Post Graduate Honours from the University of Pretoria. His expertise in the ferroalloy industry includes feasibility, due diligence studies, technology equipment design, project execution, plant commissioning and operating.



## Advisors



### **Dr Herry Kotta**

*Environmental Advisor - PT Gulf Mangan Grup*

Herry is an Environmental Engineer with a Ph.D in Geology from the Gadjah Mada University, Jogjakarta and is currently a Lecturer at the Nusa Cendana University, Kupang. He has compiled more than 40 Environmental Impact Assessment reports for manganese mining in Timor, Sabu and Flores Islands.



### **John Parker**

*Metallurgical Advisor - PT Gulf Mangan Grup*

John is a Chemical Engineer with a Bachelor of Science from the University of Cape Town, South Africa and has worked in the metallurgical industry for 30 years. His skills are in the practical application of process technology across minerals processing, pyrometallurgy and hydrometallurgy. Until recently he was Managing Director for SNC-Lavalin South Africa and now operates his own metallurgical consulting group.



### **Gary Wieser**

*Power Advisor - PT Gulf Mangan Grup*

Gary holds a Bachelor of Engineering from the James Cook University, Australia and an MBA from the University of Western Australia. He has 20 years' experience in operations, management and consulting roles in the sectors of power construction and generation, mining, hydrocarbons, logistics, supply chain management, procurement and project management.



### **Bill Sinclair**

*Engineering Advisor - PT Gulf Mangan Grup*

Bill is a Civil and Structural Engineer with a Masters of Engineering from the University of Auckland, New Zealand and a Masters of Science from the University of York, United Kingdom. He has spent 26 years in Indonesia in EPC/EPCM businesses specialising in project management and recently was the Managing Director of PT SNC-Lavalin Indonesia covering roles in power, mining, environmental, water and infrastructure sectors. He now operates his own engineering and project management group.



### **Kevin Parker**

*Indonesian Advisor - PT Gulf Mangan Grup*

Kevin has spent 35 years working in Indonesia and is fluent in Bahasa Indonesia. He has acted in various capacities in technical, mechanical and electrical engineering in areas of mining, expediting and purchasing. Recently he is developing an alternative energy industry based on Jatropha seeds to produce an environmentally sound biodiesel. Kevin has had extensive dealings with various Government Departments.



## Appendix K - Gulf Manganese Corporation - Corporate Directory

### Board of Directors

Graham Anderson - Non executive Chairman  
Peter Williams - Non executive Exploration Director  
Michael Walters - Non executive Marketing Director  
Paul O'Shaughnessy - Non executive Metallurgical Director  
Leonard Math - Company Secretary

### Management

Michael Kiernan - Chairman - PT Gulf Mangan Grup  
Helen Halliday - Commercial Manager  
Jacques Beylefeld - Metallurgical Engineer - PT Gulf Mangan Grup  
Dr Herry Kotta - Environmental Advisor - PT Gulf Mangan Grup  
John Parker - Metallurgical Advisor - PT Gulf Mangan Grup  
Gary Wieser - Power Advisor - PT Gulf Mangan Grup  
Bill Sinclair - Engineering Advisor - PT Gulf Mangan Grup  
Kevin Parker - Indonesian Advisor - PT Gulf Mangan Grup

### Registered Office

78 Mill Point Road South Perth, WA 6151  
Telephone: +61 8 9367 9228  
Facsimile: +61 8 9367 9229  
[www.gulfmanganese.com](http://www.gulfmanganese.com)

### Postal Address

PO Box 884 South Perth, Western Australia 6951

### Legal Advisors

Christian Teo Purwono (Indonesia)  
Lemonis Tantiprasut Lawyers (Australia)  
Steinepries Paganin (Australia)

### Bankers

ANZ Banking Group  
PT ANZ Indonesia

### Australian Securities Exchange

ASX Code : GMC

### Share Registry

Automic Registry Services

### Auditors

Somes Cooke

### Corporate Advisors

GDA Corporate

### Geological Advisors

SRK Geological Consulting

### Geological Services Advisors

Golder Associates (Indonesia)

### Project Managers

Como Engineering

### Pyrometallurgical Engineers

Xram Engineering (South Africa)

### Industry Associations

Australian Indonesian Business Council  
Indonesian Chamber of Commerce  
Indonesian Smelter Processing Association  
Indonesia Institute

### Investor Relations

Bourse Communications



# Sharing Benefits

**Working together with local communities in East Nusa Tenggara to develop a rewarding and environmentally responsible manganese business.**

Sharing benefits in a real and practical way, maximising benefits to the community through:

- Increased employment skills and training
- Education scholarships
- Medical benefits
- Environment conservation
- Sustainable business opportunities



## **GULF MANGANESE CORPORATION LIMITED**

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South Perth WA 6151 Australia

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

**Providing today for tomorrow**