

**Annual General Meeting 2016** 

#### Disclaimer

This document has been prepared as a summary only, and does not contain all information about the Company's assets and liabilities, financial position and performance, profits and losses, prospects and the rights and liabilities attaching to the Company's securities. This document should be read in conjunction with any public announcements and reports (including financial reports and disclosure documents) released by Indo Mines Limited. The securities issued by the Company are considered speculative and there is no guarantee that they will make a return on the capital invested, that dividends will be paid on the Shares or that there will be an increase in the value of the Shares in the future.

Further details on risk factors associated with the Company's operations and its securities are contained in the Company's prospectuses and other relevant announcements to the Australian Stock Exchange.

Some of the statements contained in this release are forward-looking statements. Forward looking statements include but are not limited to, statements concerning estimates of recoverable pig iron, expected product prices, expected costs, statements relating to the continued advancement of the Company's projects and other statements which are not historical facts. When used in this document, and on other published information of the Company, the words such as "aim", "could", "estimate", "expect", "may", "potential", "should" and similar expressions are forward-looking statements.

Although the company believes that its expectations reflected in the forward-looking statements are reasonable, such statements involve risk and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements. Various factors could cause actual results to differ from these forward-looking statements include the potential that the Company's projects may experience technical, geological, metallurgical and mechanical problems, changes in product prices and other risks not anticipated by the Company or disclosed in the Company's published material.

The Company does not purport to give financial or investment advice. No account has been taken of the objectives, financial situation or needs of any recipient of this document. Recipients of this document should carefully consider whether the securities issued by the Company are an appropriate investment for them in light of their personal circumstances, including their financial and taxation position.

The information in this report that relates to Exploration Results and Mineral Resources of the Kulon Progo Iron Sands Project is based on information compiled and reviewed by Mr. Brett Gunter, who is a Member of the Australian Institute of Mining and Metallurgy and works full time for PT GMT Indonesia. The information has been forwarded to him by Indo Mines Limited as being representative of the work completed on the concession.

Mr Gunter is a qualified Geologist who has more than 25 years of relevant mining and geological experience in coal, bulk commodities and metals, working for major mining companies and for consultants. During this time he has either managed or contributed significantly to a number of exploration and mining studies related to the estimation, assessment, evaluation and economic extraction of mineral resources in Indonesia.

He has sufficient experience which is relevant to the style and type of deposit under consideration and to the activity he is undertaking to qualify him as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.





Kulon Progo iron sand stockpile



### Company profile

#### **Key information**



- The majority shareholder of Indo Mines is the Rajawali Group, with a controlling stake of 57%. Rajawali has invested over AUD\$50M into Indo Mines since its initial investment in late 2012.
- Rajawali is one of the largest privately owned conglomerates in Indonesia. Its core interests include mining and resources, agriculture and hospitality. Rajawali has a strong track record in Indonesia of successfully developing projects into operation in Indonesia with strong corporate governance
- Rajawali Group also owns a significant stake in Triaryani Coal, which has tested to be an appropriate raw material for the proposed pig iron plant and power plant

#### **Company**

Indo Mines Limited Australian stock exchange (IDO) 538,026,598 shares on issue

No options on issue

Market cap: A\$4.8 million (as at 28 November 2016)

#### **Shareholders**

Yogya Metals and Mining Ltd	27.88% *
Java Metals and Mining Ltd	18.59% *
Rajawali Group Int. Ltd	10.65% *

\* Rajawali Group



**Top 10 85.38%**Top 20
93.31%

#### **Profile**

Indo Mines is a company in the development phase of becoming a fully integrated steel producer utilising low grade iron sands. Over the last years its core focus has been research and developing the Kulon Progo iron sand deposit, to commercially viable status.

Indo Mines also owns 51% of Sapex Oil Services Ltd, a drilling and mining services contractor. The company provides linear down hole tool services and holds the license to distribute Durabase Mats in Indonesia, Philippines and Myanmar. Clients include Chevron Indonesia, Pertamina, Bintang Delepan, Kaltim Prima Coal, Conoco Phillips, Exxon Mobil

### Strong board and management

Peter Chambers
Chairman

A member of the Rajawali board from 2005 to June 2014, including as MD – Strategy and Governance. On Board of Commissioners and key person in the establishment of Excelcomindo, Indonesia's 3<sup>rd</sup> largest mobile telephone operator

**Arran Marshall** *Chief Executive Officer* 

Most recently held the role of County Head for AWR Lloyd in Indonesia, a specialist mining an energy advisor in SE Asia. Holds an MBA and core competencies are in business development, project management, financial analysis, strategy and capital markets

**Hendra Surya** *Non-Executive Director* 

Joined the Rajawali Group in 2005 and is currently the Managing Director – Mining and Resources. Previously with PricewaterhouseCoopers where he was involved with a number of government related projects and a wide number of privatisation and major project financing

Darryl Harris
Non-Executive Director

A metallurgist with over 20 years experience in the design and commissioning of mineral processing plants. He was Managing Director of Beacon Minerals Ltd until March 2012 and is Head of Ferrous Solutions for Outotec SEAP

Darjoto Setyawan
Non-Executive Director

He has been employed with the Rajawali Group since 1996 and has held the role of Managing Director – Mining and Resources since 2005. He has served as a board member on a number of companies where Rajawali has an interest, including as President Director of the Bentoel Group

Richard Edwards
Company Secretary

Has for over ten years provided financial reporting and company secretarial services to Australian companies, including as CFO/Company Secretary of Sumatra Copper & Gold plc. He is Company Secretary of ASX listed Augur Resources Ltd and unlisted Nickel Mines Ltd and Prospech Ltd.

**Bobi Sandi** *Chief Financial Officer* 

A strong budgeting cost control, financial audit and accounting background. Previously the financial controller of PT Vale Indonesia Tbk one of the largest nickel producers in the world. Also currently the CFO of PT Jogja Magasa Iron, the 70% subsidiary company of Indo Mines Ltd



### Key milestones to date











- All licenses have been obtained to develop and construct a beneficiation plant to produce iron sand concentrate and an iron making facility – this includes AMDAL and construction license
- 172 hectares has been purchased with 50 hectares under clean and clear status
- Upgrade of resource to JORC 2012 standards by PT GMT Indonesia
- Process flow design and engineering completed by Ferrostaal Engineering for beneficiation plant – design is based on producing a consistent concentrate at 58.5% Fe content and 56.5% Fe at very competitive costs
- Pellets successfully produced from 58.2% Fe product with appropriate strength for smelting
- Two potential strategic partners identified and negotiating heads of agreement
- Potential off-takers for iron sand concentrate identified and obtaining Letters of Interest
- Significant increase in potential vanadium recovery
- Poyry Engineering appointed for design of co-generation and power plant found to be technically feasible
- Recent test work by Outotec has provided solid results for reduction and smelting process, illustrating 100% recovery of vanadium and iron
- Triaryani coal proven to be a superb reductant agent for kilns
- Land transport sufficient for one production line and existing train tracks can be used for additional production line and expansion
- Definitive Feasibility study of iron plant by Outotec Engineering utilising rotary kiln and submerged arc furnace with heated grate induration process for green ball hardening





Bench Pelletizer from Jiangsu Machinery for iron sand concentrate pellet trials with GeoServices Jakarta

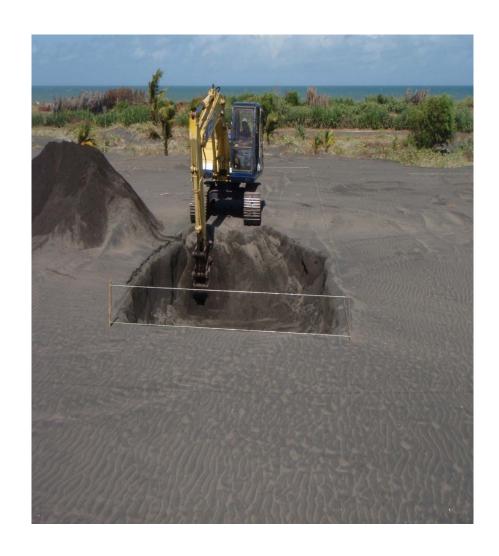


#### Iron sand: what is it?

- Iron Sand is titano-magnetite, an abundant ore produced by volcanic activity
- It contains up to 62.5% iron combined with up to 7 9% titania (TiO<sub>2</sub>)
- Its high TiO<sub>2</sub> content is undesirable in blast furnace feed as primary raw material

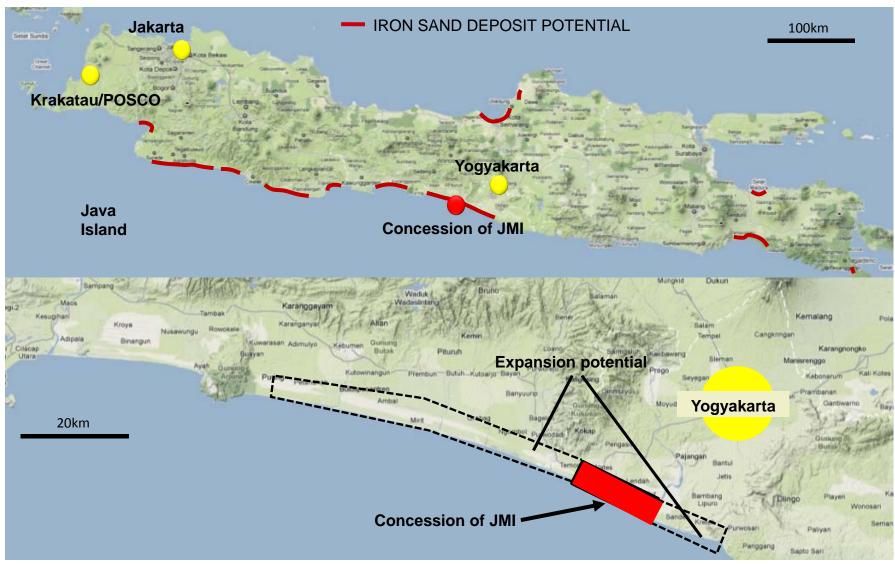
#### **BUT**

- Ideal feed material for new Direct Reduced Iron (DRI) technologies
- Vanadium content is a potentially valuable by-product
- Rich titania slag is used as feedstock for the titania industry or as high quality skid resistant road material
- Potential to upgrade titania slag
- Some blast furnaces utilise up to 7% feed of iron sand concentrate as titania assists in longevity of refractory walls and as a low cost source of iron for blending



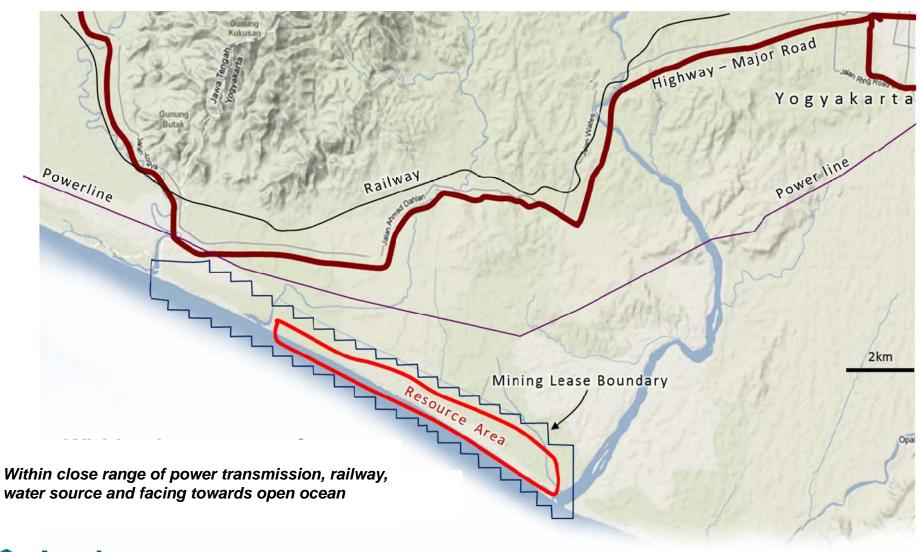


# Iron sand potential Java Island



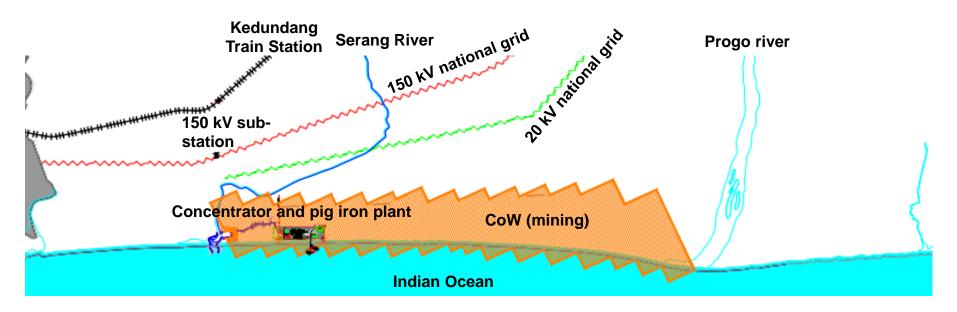


# **Project location**





### Project location



- The processing plant (concentrator and pig iron) located within the boundary of the Contract of Work (CoW)
- 4.4-km fence has been erected to protect the boundary of the plant site (acquired land)
- Fence and other temporary roads inside the plant site were constructed by local community as part of CSR program
- Electricity will be supplied from the waste heat generator (co-generation) and power plant. National grid (150 kV) is available and can be used as a back up electricity
- Water can be extracted from the rivers and aquafer additional water can be distilled using steam from power plant
- Train track and station is conveniently located 6km from site and can be expanded to bring coal from sea port in Java Island (Cilicap port) rail connects to Smerang and Surabaya (major internal steel markets)
- Provincial road (on the north side of the plant) is connected to major cities within Java Island



### Mining resource – Australian 2012 JORC standard

Block	Stratigraphy	Category	Volume	Dry Tonnes	Fe	TiO <sub>2</sub>	$V_2O_5$
			$(,000 \text{ m}^3)$	(,000 t)	(%)	(%)	(%)
Resource							
Block	Surface Sand	Measured	29,044	55,370	12.56	1.65	0.06
		Indicated	77,800	150,600	14.17	1.87	0.07
		Total	106,900	206,000	13.74	1.81	0.07
Mining							
Boundary	Surface Sand	Measured	22,015	42,079	12.37	1.62	0.06
		Indicated	67,900	131,600	14.15	1.87	0.07
		Total	89,900	173,700	13.72	1.81	0.07

Note: The Resource Block is defined as all areas of the Resource defined within the concession by the exploration drilling at a 9% Total Fe cut-off. The Mining Boundary is defined as the Resource Block, minus a 200-metre buffer zone (required by Indonesian regulations) between the high tide mark and the allowed mining area boundary at a 9% Total Fe cut-off

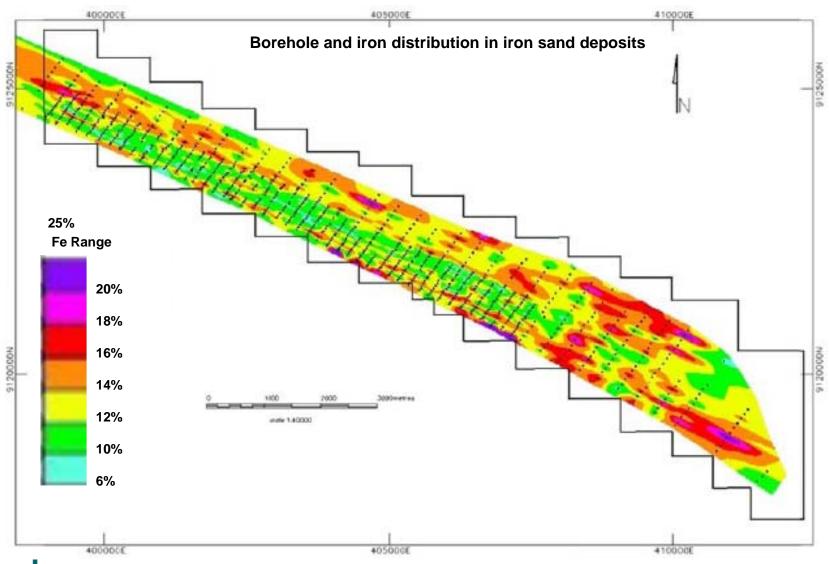
In addition, there are Resources within the concession hosted within the Gravel underlying the Surface Sand. This gravel layers also contains lower grades of Total Fe. The Resource estimate for the Gravel horizon is set out in the following table

Block	Stratigraphy	Category	Volume	<b>Dry Tonnes</b>	Fe	TiO <sub>2</sub>	$V_2O_5$
			$(,000 \text{ m}^3)$	(,000 t)	(%)	(%)	(%)
Resource Block	Gravel	Indicated	188,500	327,600	7.22	0.90	0.03
Mining Boundary	Gravel	Indicated	150,300	261,900	7.23	0.90	0.03

Note: The Resource Block is defined as all areas of the Resource defined within the concession by the exploration drilling at a 5% Total Fe cut-off. The Mining Boundary is defined as the Resource Block, minus a 200-metre buffer zone (required by Indonesian regulations) between the high tide mark and the allowed mining area boundary at a 5% Total Fe cut-off.



# Jogja Magasa Iron - deposit profile





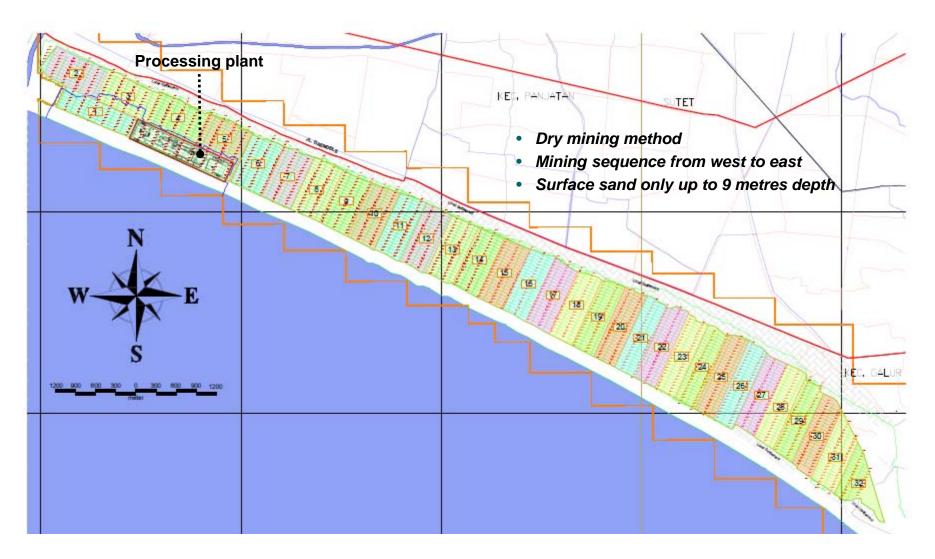
929 holes, 14,000 samples

# Jogja Magasa Iron - deposit distribution high grade strand lines



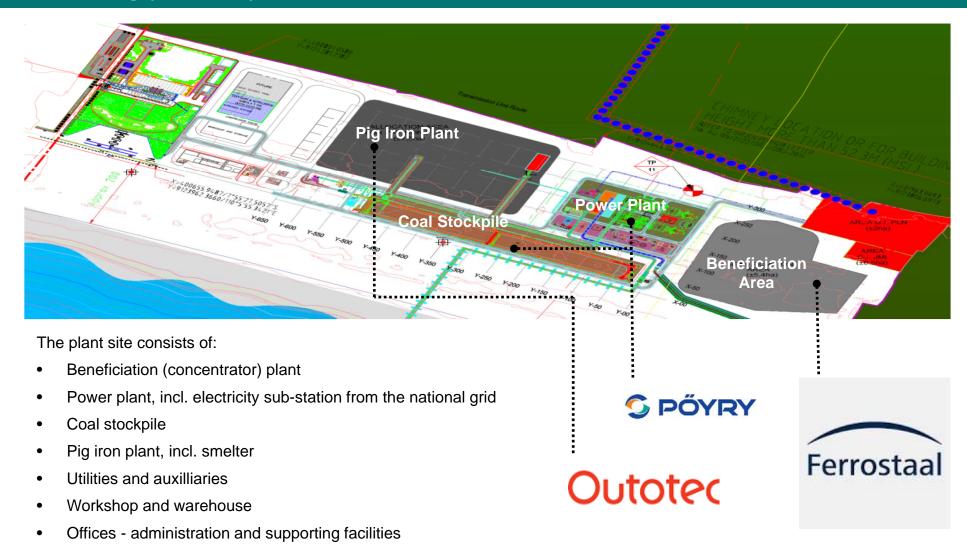


# Jogja Magasa Iron – mining plan



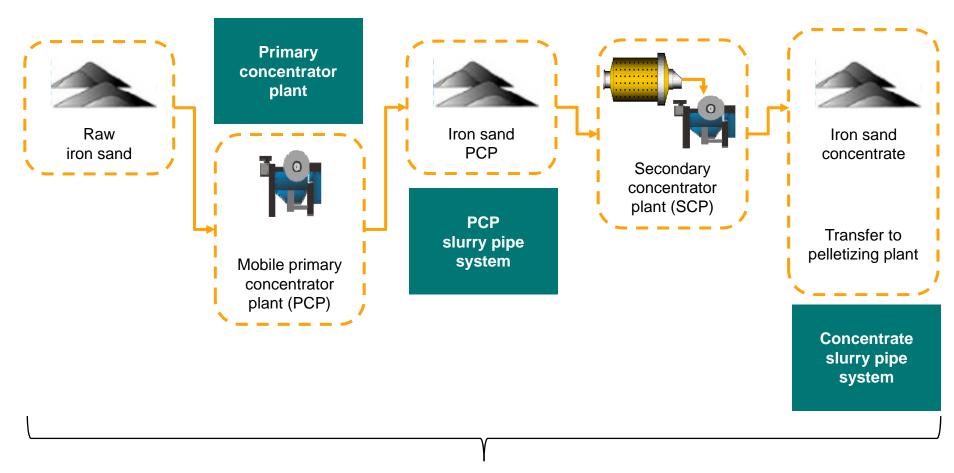


## Processing plant layout





# Mining to concentrate – process flow



Process equates to an approximate per ton concentrate (58.5% Fe)



# Mining to concentrate – trial mining and processing

Successful trial mining and beneficiation pilot plant was achieved in 2012 – 30,000 tons of final concentrate was produced and still sit on stockpile





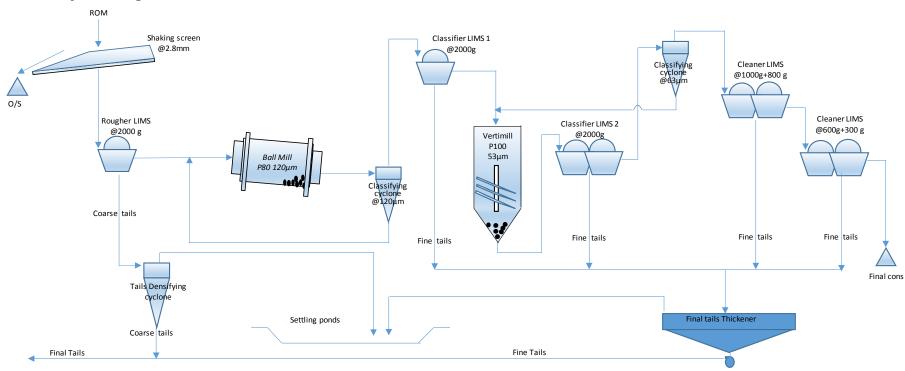






### Beneficiation plant

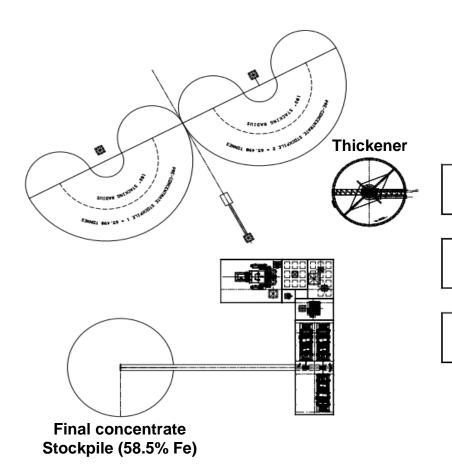
#### **Process flow diagram**



- Process design produces a consistent 58.5% 59% Fe concentrate with acceptable levels of phosphorus and sulphur
- Design based on average grade of 13.6% Fe at 800 tons per hour however will be able to process low grade material at
   9% Fe at 1500 tons per hour



### Beneficiation plant cont...



Primary Pond 1 100 x 30m

Primary Pond 2 100 x 30m

Secondary Pond 100 x 30m

- Basic engineering design work completed to define conceptual design and general arrangement of the beneficiation plant. Key measurable result was ensuring the plant design can produce iron sand concentrate with least 58.5% Fe with head grade feed material as low as 9% Fe (average 13.65% Fe)
- Ferrostal was appointed to prepare basic engineering of the plant and conduct pilot scale test which was completed in Cologne Germany by MBE labs
- The cost estimation has been performed considering a "turn-key EPC"
- It was advised that the beneficiation plant was technically found to be feasible for construction

Beneficiation plant layout



### Iron plant - rotary kiln and electric arc furnace



Pig iron from pilot scale test work with Outotec



Submerged arc furnace

- Outotec Engineering appointed to complete the Definitive Feasibility Study (DFS). Design utilises a circular furnace with SL/RN Xtra kiln technology process
- Because of fineness of concentrate (56 micron), it is pelletized into green balls and then indurated via a travelling grate system – energy for the travelling grate is sourced from the rotary kilns
- There are two kilns (for reduction process) that can be run independently while the other is on scheduled maintenance
- The smelter is designed to run 24/7 and power plant has been designed to ensure continuous electricity supply
- Slag @ 37% titania is produced that can be sold as roading aggregate potential to upgrade slag to 60% titania
- Vanadium recovery design is based on New Zealand steel hot metal treatment system.
   Final product is a V2O5 16.5% concentrate slag, that is bagged and shipped to refiners
- Preliminary soil investigations have been conducted and Hatch Engineering (consultant) did not find major technical issue with soil condition for foundation
- It was advised that the pig iron plant was technically found to be feasible for construction
- To produce 500,000 tons of finished steel utilising current configuration, would require scrap input at blast oxygen furnace stage



## Iron plant – pilot plant test work

Indo Mines in 2011 completed Outotec's Ausiron process pilot scale test work in Melbourne, Australia. The process utilised Kulon Progo iron sand concentrate to produce pig iron. After completion of the prefeasibility study by Hatch, the Outotec SL/RN submerged arc furnace process was the preferred process. In 2015 Outotec successfully processed 1 ton of concentrate via the SL/RN process with 100% recoveries of iron and vanadium



Kulon Progo DRI in Outotec Melbourne pilot plant



# Iron plant – pilot plant test work



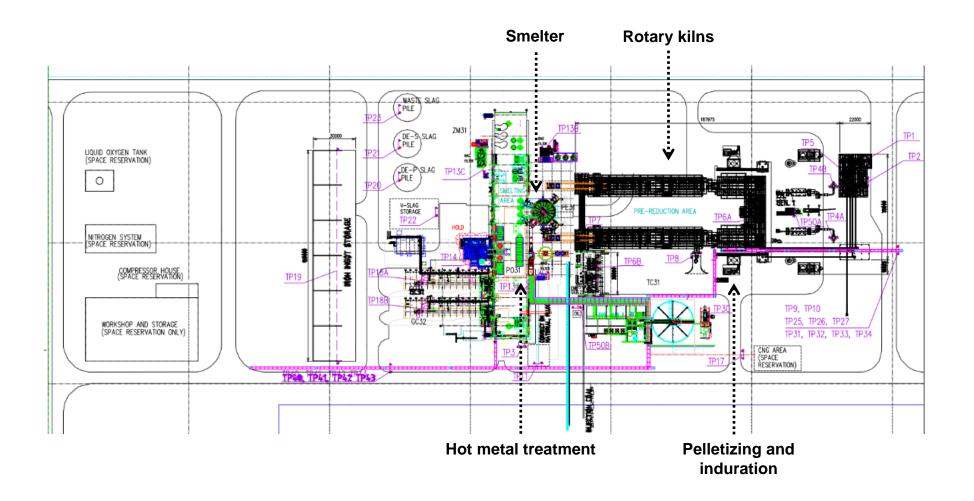




Ausiron process pilot scale hot metal tapping utilising Kulon Progo DRI



# Iron plant – layout





Pig iron plant layout

# Iron plant – equipment layout without housing





# Iron plant – equipment layout without housing cont...





# Pig iron specifications (Hatch heat/mass balance)

COMPONENT	MODEL OUTPUT (WT%)
Fe	96.55
С	3.05
Si	0.05
Mn	0.05
S	0.04
P	0.07
Ti	0.03
V	0.09
Cr	0.07
Cu	0.00

Meets International Metallics Association phosphorus and sulphur specifications



#### Vanadium – hot metal treatment





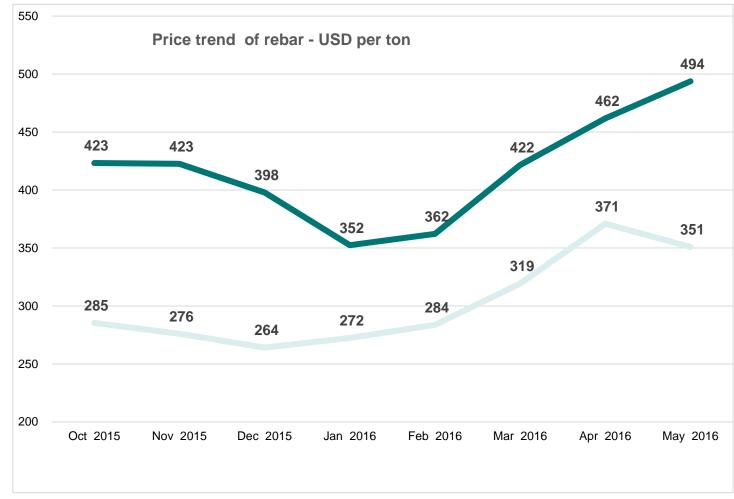
**indo** mines Itd

- The iron ladle is placed in a hydraulically operated transfer car
- The car is then driven under a water cooled hood that is lowered on to the lip of the ladle
- A refractory coated nitrogen injection lance is lowered into the ladle and gently stirs the iron
- Millscale (iron oxide) is added to the top of the iron and is stirred into the bath
- A second lance then blows oxygen at the surface of the iron to generate more iron oxide
- The iron oxide preferentially oxidises the vanadium that then floats to the surface forming a vanadium oxide rich slag
- Careful control of the iron silicon level is required to avoid a 'boil out'
- Once the oxygen and nitrogen blowing is completed the ladle is hydraulically tilted
- A rabble arm is then used to physically remove the slag to a skip
- The vanadium slag (±15% V<sub>2</sub>O<sub>5</sub>) is then cooled, crushed, iron units recovered and bagged for sale

# Steel pricing Indonesia

Indonesia

China

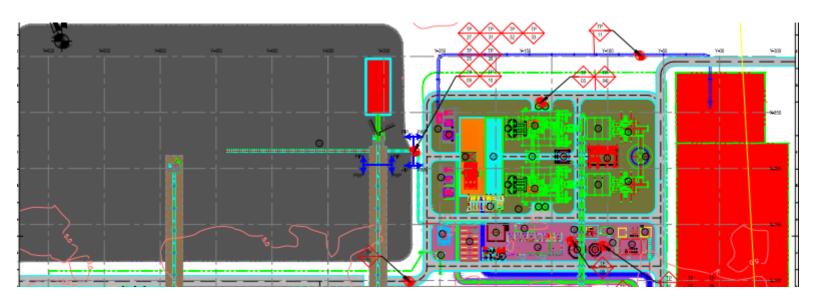


Source: Steel Indonesia and Bloomberg rebar futures China spot



### Power plant

- Poyry study defined the conceptual design of the power plant together with cost estimation to supply electricity for the pig iron process and concentrator plant.
- Several options of power plant configuration were evaluated. To ensure high reliability, the selected solution is two separate trains (2 x 50 MW), utilising two CFB boilers and two condensing steam turbines
- The cost estimation has been performed considering a "turn-key EPC" approach. The operation and maintenance costs
  were estimated to be around US\$26.8M per year. Considering this O&M costs and the produced electricity, the cost of
  electricity production was calculated to be \$33.60 USD/MWh (excluding the investment cost and any time related cost
  escalations)
- It was advised that the power plant was technically found to be feasible for construction
- Power plant design utilising Triaryani coal





Power Plant Plant Layout

### Triaryani coal – perfect reductant and Group owned

# Location **Musi Rawas** Palembang South Sumatera Rawas Ilir district, Musi Rawas regency, **South Sumatera**

#### **Tenement**

IUP: KW 1 1 1605 3 03 2014 001

 SK Bupati Musi Rawas Utara No: 540/220/KPTS/DPE-LH/2014 dated 23 May 2014

• Area: 2143 ha

#### **Coal deposit**

Malam Block

• JORC resource : 384 MT

• JORC reserve : 242 MT at average SR 3.69 \*)

\*) Estimated potential reserves is <u>+</u> 309Mt at SR 4.3, additional drilling required to confirm it

#### Quality

- Low rank clean coal with low ash and low sulfur
- Average coal specification

<ul><li>CV GAR</li></ul>	(Kcal/kg)	3800-4200
- Ash	(%)	<5%
<ul><li>Sulfur</li></ul>	(%)	<0.2



TRIARYANI

### Triaryani coal – site pictures

Triaryani is a producing coal mine in South Sumatera and is owned by the majority shareholder of Indo Mines. Test work has been carried out on the coal by HRV in Australia and has proven to be the perfect reductant coal for rotary kiln application. The coal seams are large and very consistent providing good supply. The coal will also be utilised for the projects power plant











#### Logistics

- LAPI ITB have provided a comparison of Opex & Capex when using road vs rail services since there is no sea port
  within a radius of 100 km from the project site the study examined the sea ports in Java Island that are connected to train
  tracks and major roads
- Based on existing data and analysis, it recommends to utilise Tanjung Intan Port in Cilacap to ship coal from the Triaryani mine source in Sumatera to JMI's plant site with the following reasons:
  - > Proximity to project site (140 km) and Berth operating ratio (BOR) is relatively low i.e. < 50% in 2014 & 2015
  - > The port provides sufficient throughput to fulfil phase 2 coal demand with a dedicated berth
  - > Available rail infrastructure within the port
  - ➤ Available berth for 40,000 DWT vessel and 10,000 DWT barge
  - > Solid supporting facilities (berths parallel to railway, hoppers, crane grab, excavator, storage both open and closed



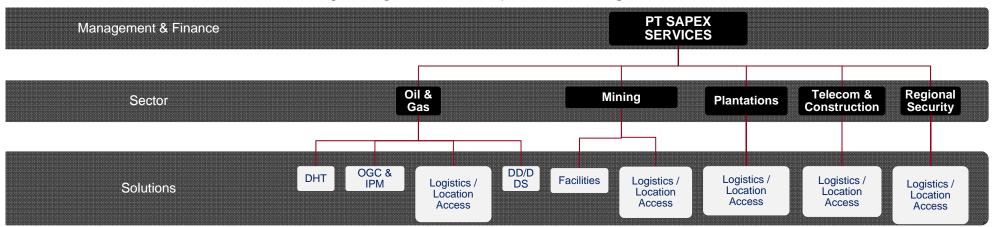


# SAPEX Summary – Who We Are

#### Vision:

- Rapidly scaled, easily exportable
- Connected to diverse markets for maximum penetration in bear market conditions
- Tight and cohesive corporate culture fosters immediate response to customer service requirements
- Focused safety efforts effectively implemented, maintained and improved

- A lean, growing energy services firm. The company's strategy is to expand and diversify its oil and gas industry capabilities, and aggressively add new target opportunities in the mining, construction, plantation, telecommunication and national security sectors across South East Asia.
- Leveraging 80+ years of experience in emerging energy markets, capitalizing on proven equipment and engineering solutions. Utilising existing SAPEX Operational Framework, Personnel, Culture and Values.
- Providing rapid-response logistics and staging area construction solutions via a location management services team. Combined with the world's leading Dura-Base® composite mat system, PT SAPEX SERVICES targets multiple industries with one suite of solutions.
- Exclusive licenses to distribute and service the Dura-Base® Composite Mat System regionally, continuously adding value to the Mat System, expanding our technical services capabilities
- Value Multipliers in Completions Services (DHT), IPM (Integrated Project Managements Services / Drilling Management Services), Facilities & Logistics Services.





# SAPEX Summary – Our Mission

PT SAPEX Services
(SAPEX) operates a
South East Asian
energy services
business which
includes high end
facilities and location
access solutions,
best-in-class and
market specific
Consulting Services,
and downhole tool
Manufacturing &
services

#### Facilities & Location Access

- Centered around the worlds leading Dura-Base® Composite Mat Systems, bundled with industry leading temporary workspaces, SAPEX will provide a comprehensive, One-Stop shop for every operator on-shore across most energy and construction industries. Composite Mats are recognized globally as market leaders in heavy duty terrain access challenges, providing ground stability solutions for the energy, mining, construction and military industries world wide
- SAPEX will secure & expand exclusive licenses for distribution regionally in SE Asia
- Key drivers of the business are i) contract length, ii) lease rates / day, and iii) CAPEX
- · Closest competitors known to regularly fail pre-qualification requirements of IOCs due to sub-standard quality

Completions / Downhole tool services ("DHT")

- The company has been providing SAPEX downhole tools to improve the efficiency and lower the total cost of drilling and production programs for IOCs in Indonesia for over 20 years
- Field Proven SAPEX Completions Tool designs, and 30+ years pedigree in the region
- Field proven SAPEX Field Engineers

O&G ServCo
Consulting
Services

- Leveraging 80+ Years of experience in emerging energy markets, with strong specialization in Indonesia
- Providing market entry analysis, operations/marketability feasibility studies, agency selection guidance, tax and legal advisory services
- Western educated and experienced, culturally "In Tune" with the region, SAPEX is the ideal partner in a foreign land for market penetration and expansion.

#### **Industry trends**

- Declining oil prices have reduced appetite for E&P in South East Asia – affecting CAPEX Projects.
- However, maintenance still required on existing / operating wells which provides consistent / ongoing contracts. Diversification is Critical.
- SAPEX FLA, OGC and DHT provide cost improving services which are viewed as favorable in times of increasing tight margins
- Forecast improvements in oil price above USD55/bbl should see recurrence of exploration programs – SAPEX will be well positioned to capture on this

#### **Market position**

- Recognizable brand within mid-market sized O&G service providers, with solid reputation for quality and value, particularly with large IOCs such as Chevron
- Deep industry experience and know-how allows SAPEX to compete regularly with larger O&G service providers
- Significant advantage of being exclusive license holder of the Dura-Base® Composite Mat System – with industry-wide applicability and therefore, growth potential, creating significant barriers to entry for competitors
- High switching costs between Dura-Base® Mats or DHT create supplier power and frequent contract rollovers



### SAPEX Activities Overview 2016

FLA:
 Dura-Base®
 Location
 Access
 Services

Oil & Gas Sector

0

Multiple Dura-Base Rental Projects nationally. Clients including:

- Chevron Pacific Indonesia
- Talisman / Repsol Advance Prep Team (Site)

Mining & Construction Sectors

Multiple Rental Projects nationally. Clients including:

- Mining Service Co's / Titan Energy
- PT. BUMA
- PT. PP







 OGC-IPM & Completions / DHT Services

Oil & Gas Sector

- Integrated Project Management for IOC Management, Contracting and Drilling Services Management – Turn Key
- 2. Completions Services & DHT contracts

#### Clients Include

- Chevron Pacific Indonesia
- PT. Pertamina
- Stockbridge Budong-Budong





# Thank you





Kulon Progo hot metal