

South Africa Energy Metallurgical Industrial Zone Brief Introduction

Investment opportunity in Africa energy metallurgical

香港礦權交易所技術研究院

HK Mining Exchange Company Limited Research Institute of technology

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South Africa Energy Metallurgical Industrial Zone Brief Introduction

South Africa Energy Metallurgical Industrial Zone is a national Energy Metallurgical Industrial Zone according to the special economic zones law of South Africa and the legislation through parliament, it enjoys South Africa national special economic zones tax benefits and all preferential treatment of South Africa's foreign investment policy . South Africa Limpopo Economic Development Agency and South Africa energy metallurgical base company limited proposed to establish a joint venture of South Africa energy metallurgical special industrial zone management limited, to invest, develop and manage the energy metallurgical industrial zone. The industrial zone is located in Musina area of limpopo province in South Africa, the project covers an area of 60 square kilometers, adjacent to Zimbabwe and mozambique border, it is in the mid of 3 large scale open cast coal mines of Coal of Africa company, Universal coal company and BHP Coal company, the region has more than 20 billion tons of coking coal resources. Within 200 km of the industrial zone, rich in iron and steel furnace material mine resources, there are 7 billion tons iron ore, 5 billion tons chrome ore, 6 billion tons manganese ore , 6 billion tons of silicon ore, 5 billion tons nickel ore and 20 billion tons of limestone. Inside the industrial zone, there are national railway, highway, power supply network, 500 kilometers to maputo large port. Limpopo river is 30 kilometers from the project location, this river is an important water source of industrial zone project .

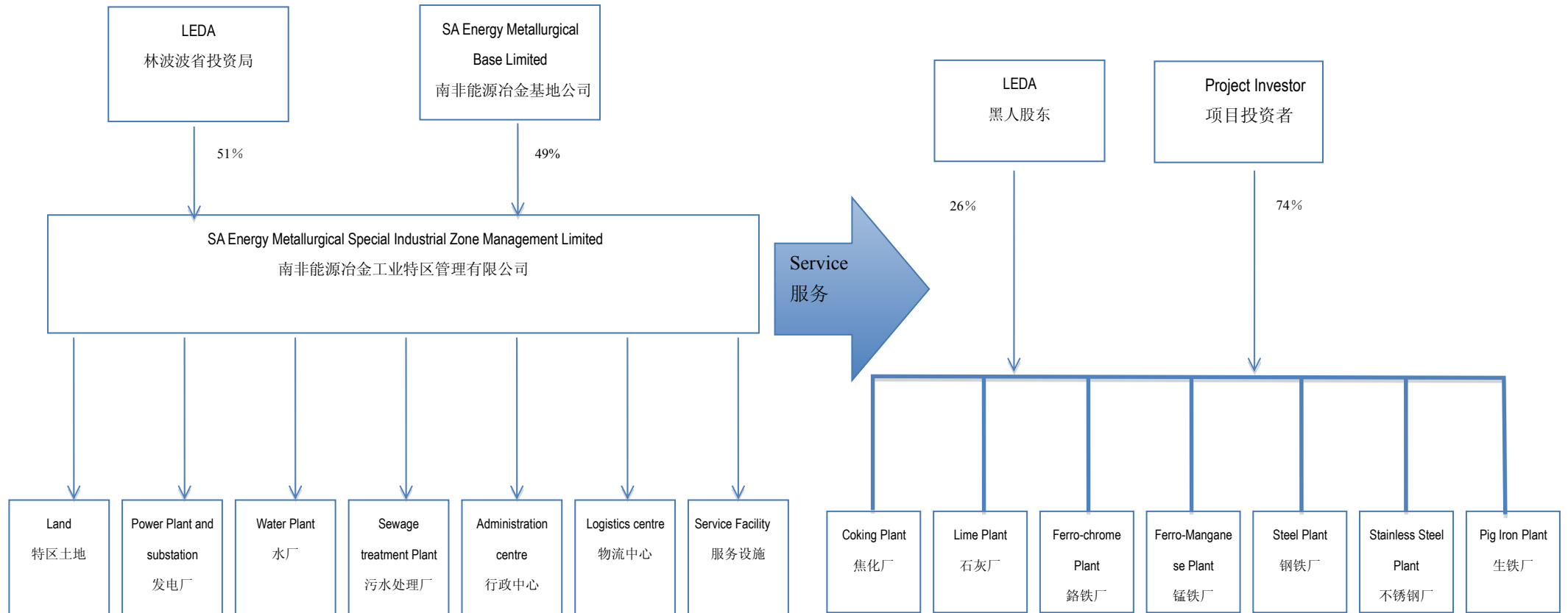
The industrial zone project will be built 1,320MW thermal power plant, the annual output of 10 million tons of coal washery plant, 1.1 million tons of coking plant, 600,000 tons of ferromanganese plant, 300,000 tons of ferrosilicon plant , 3 million tons of iron plant, 2 million

tons of steel plant, 1 million tons of stainless steel plant, 5 million tons of limestone plant. The industrial zone will be built the government administrative service center (Business administration, customs, taxation, etc), staff living area service Center (staff dormitory, hotels, shopping malls, etc.) and the highway, railway, shipping comprehensive logistics service center (for the projects of point to point logistics service). Set up a mine resource supply center, provide all kinds of metallurgical furnace materials from mine resources for the industrial zone projects.

The industrial zone project energy metallurgical technology integration advantages, coking coal mining → coal washery → coking plant → power plant → iron alloy plant → iron plant → steel plant (one-stop metallurgy process), ferroalloy water and the iron water hydrothermal send to steel plant for steel making, greatly reducing smelting Energy consumption, the metallurgical vertical process technological superiority and unique in the world. South Africa energy metallurgical special industrial zone management limited provides all the preferential policies and guaranteed competitive resources supplies and supporting service facilities for the metallurgical project investors. The industrial zone has all kinds of metallurgical raw materials mining resources, land, water, power plant, coke chemical plant, sewage treatment plant, comprehensive office building, staff living quarters, shopping malls and other facilities. Energy metallurgical base projects: Ferroalloy plant, iron plant and steel plant, stainless steel plant and so on, openly invite project investors around the world. We sincerely inviting peers friendly visit to South Africa Energy Metallurgical Industry Zone and have a discussion, we hope to cooperate with friends and advantage complement to each other, seek common development and create the world's most competitive energy metallurgical base.

South Africa Energy Metallurgical Base Project

南非能源冶金基地项目





South Africa Energy Metallurgical Base Project

Preliminary feasibility study report outline summary contents

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3. Power plant -----1,320MW thermal power plant construction
4. High carbon ferrochrome plant----Annual output of 600,000 tons high carbon ferrochrome
5. Ferromanganese plant -----Annual output of 600,000 tons ferromanganese
6. Ferrosilicon plant -----Annual output of 300,000 tons ferrosilicon
7. Pig iron Metallurgy Plant---Annual output of 2 million tons Pig Iron
8. Steel Plant -----Annual output of 3 million tons steel
9. Stainless steel plant -----Annual output of 1 million tons stainless steel
10. Lime plant -----Annual output of 5 million tons lime

SA Energy Metallurgical Industrial Zone Project Investment Data

Project Data	Project investment	Project land use	Water consumption	Project workers	Annual production
Project name	(\$m)	(hectares)	(mM ³)		(\$m)
Power Plant	1,000	300	9	800	250
Coking Plant	300	500	2.5	1,200	220
Ferrochrome Plant	400	500	6	2,600	600
Ferromanganese Plant	400	500	6	2,300	400
Ferrosilicon Plant	200	300	4	1,800	250
Pig Iron Plant	100	600	4	3,000	450
Steel Plant	600	600	3	2,600	800
Stainless Steel Plant	400	500	2	2,000	2,000.00
Lime Plant	100	500	3	1,500	200
Supporting Facilities	300	2,000	5	3,000	180
Total Project Investment	3,900	6,300	44.5	20,800	5,350.00

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 110 万吨焦炭厂建设项目

Annual output 1.1 million tons coking plant
construction project

可行性研究报告

The feasibility study report

香港矿权交易所技术研究院

HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

May 2014



香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

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6. 建厂条件和厂址方案 Factory construction conditions and site plan
7. 公用工程和辅助设施 Public utilities and auxiliary facilities
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10. 劳动安全 Labour safety
11. 消防 Fire control
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Summary of Coking Plant Project

For the South Africa Energy Metallurgical Base Coking Plant Project (“ project ”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“ InvestCo ”) and other investors from the coking industry. The plant can produce 1.1 million tons of metallurgical coking coal per annum. The coking plant (“ plant ”) will be located at the energy metallurgical base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 20 billion tons of open pit coking coal in around the project site.

The size of the land for the plant to be developed will be 500 hectares. 3 million tons of coking coal with net calorific value of 6000Kcal/kg or above per annum will be required which will be sourced from the surrounding coking coal mines. The water will be sourced from the Limpopo river. Water usage will be 2.5 million m³ per annum. Power will be supply by the self-established power plant of the energy metallurgy base. The coking coal will supply mainly to the plants of the energy metallurgical base and other users of the metallurgy industry in South Africa. 1200 workers will be employed from Limpopo for the

project .Office and living facilities will be provided by the South Africa Metallurgical Industrial Zone Management Limited (“MANCO”).The overall project investment will be \$300 millions. The annual production output value at \$220 millions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

132 万千瓦火力发电厂建设项目

1,320 MW thermal power plant
construction project

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Initial Investment Estimates and Financial Risk Analysis



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Summary of Thermal Power Plant Project

The project name is South Africa Energy Metallurgical Base Thermal Power Plant Project (“project”), the investors will comprise of the South Africa Metallurgical Special Industrial Zone Management Limited (“MANCO”) and other investors from the power supply industry. The coal-fired power plant will have 1,320 MW power generator(2 sets of 660MW power generator) . The power plant (“plant”) will be located at the energy metallurgical base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 20 billion tons of open pit coking coal in around the project site.

The size of the land for the plant to be developed will be 300 hectares. The thermal coal is mainly obtain from the slag after the washing of coking coal. 5 million tons of thermal coal with net calorific value of 5000kCal or above per annum is required which will be sourced from the surrounding coal mines.The water will be sourced from the Limpopo river. Water usage will be 9 million m³ per annum. The plant is a self-established power plant for the energy metallurgical base and will connect to the state grid. The plant will supply power mainly to the

energy metallurgy base and its facilities. It can also supply power to the surrounding villages. 800 workers will be employed from Limpopo for the project .Office and living facilities will be provided by the South Africa Metallurgical Special Industrial Zone Management Limited (“MANCO”). The overall project investment will be \$1 billion. The annual production output value at \$250 millions. The period for project development is 3 years.



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南非能源冶金基地

South Africa Energy Metallurgical Base

年产 60 万吨高碳铬铁厂建设项目

Annual output of 600,000 tons high carbon
ferrochrome plant construction project

可行性研究报告

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HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

May 2014



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Summary of Ferrochrome Plant Project

For the South Africa Energy Metallurgical Base Chrome Plant Project (“project”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“InvestCo”) and other investors from the chrome industry. The plant can produce 600 000 tons of High carbon ferrochrome. The ferrochrome plant (“ plant ”) will be located at the energy metallurgical base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 5 billion tons of chrome resources in around the project site.

The size of the land for the plant to be developed will be 500 hectares. 2 million tons of chrome ores per annum will be required which will be sourced from the surrounding chrome mines. The water will be sourced from the Limpopo river. Water usage will be 6 million m³ per annum. Power will be supply by the self-established power plant of the energy metallurgy base. The ferrochrome will supply mainly to the stainless steel plant of the energy metallurgy base and the export to overseas market. 2600 workers will be employed from Limpopo for the project. Office and living facilities will be provided by the South Africa Metallurgical Special Industrial Zone Management Limited (“MANCO”).

The overall project investment will be \$380 millions. The annual production output value at \$600 millions. The period for the project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 60 万吨锰铁厂建设项目

Annual output of 600,000 tons Ferromanganese
plant construction project

可行性研究报告

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Summary of Ferromanganese Plant Project

For the South Africa Energy Metallurgical Base Ferromanganese Plant Project (“project”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“InvestCo”) and other investors from the ferromanganese industry. The plant can produce 600 000 tons of high carbon ferromanganese per annum. The ferromanganese plant (“plant”) will be located at the energy metallurgy base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 8 billion tons of manganese resources in around the project site. The size of the land for the plant to be developed will be 500 hectares. 3 million tons of manganese ores per annum will be required which will be sourced from the surrounding manganese mines. The water will be sourced from the Limpopo river. Water usage will be 6 million m³ per Annum. Power will be supply by the self-established power plant of the energy metallurgy base. The ferromanganese will supply mainly to the stainless steel plant of the energy metallurgical base and export to overseas market. 2300 workers will be employed from Limpopo for the project Office and living

facilities will be provided by the South Africa Metallurgical Industrial Zone Management Limited (“MANCO”). The overall project investment will be \$430 millions. The annual production output value at \$400 millions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 30 万吨硅铁厂建设项目

Annual output of 300,000 tons Ferrosilicon
plant construction project

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HONG KONG MINING EXCHANGE COMPANY LIMITED

Summary of Ferrosilicon Plant Project

For the South Africa Energy Metallurgical Base Ferrosilicon Plant Project (“project”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“InvestCo”) and other investors from the ferrosilicon industry. The plant can produce 300 000 tons of ferrosilicon per annum. The ferrosilicon plant (“plant”) will be located at the energy metallurgy base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 3 billion tons of Silicon resources in around the project site. The size of the land for the plant to be developed will be 300 hectares. 1 million tons of silicon ores per annum will be required which will be sourced from the surrounding silicon mines. The water will be sourced from the Limpopo river. Water usage will be 4 million m³ per Annum. Power will be supply by the self-established power plant of the energy metallurgy base. The ferrosilicon will supply mainly to the stainless steel plant of the energy metallurgical base and export to overseas market. 1800 workers will be employed from Limpopo for the project Office and living facilities will be provided by the South Africa Metallurgical Industrial Zone Management Limited (“MANCO”). The overall project

investment will be \$200 millions. The annual production output value at \$250 millions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 200 万吨冶金生铁厂建设项目

Annual output of 2Million tons of Pig Iron
Metallurgical Plant construction project

可行性研究报告

The feasibility study report

香港矿权交易所技术研究院

HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

May 2014



香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

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香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

Summary of Pig Iron Metallurgy Plant Project

For the South Africa Energy Metallurgical Base Pig Iron Metallurgical Plant Project (“project”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“InvestCo”) and other investors from the metallurgy industry. The plant can produce 2 million tons of metallurgical pig iron per annum. The Pig Iron Metallurgy Plant (“plant”) will be located at the energy metallurgy base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 5 billion tons of iron resources in around the project site. The size of the land for the plant to be developed will be 600 hectares. 5 million tons of iron ores per annum will be required which will be sourced from the surrounding iron mines. The water will be sourced from the Limpopo river. Water usage will be 4 million m³ per annum. Power will be supply by the self-established power plant of the energy metallurgy base. The metallurgy pig iron will supply mainly to the steel plant of the energy metallurgical base and export to overseas market. 3000 workers will be employed from Limpopo for the project. Office and living facilities will be provided by the South Africa Metallurgical Special Industrial Zone

Management Limited (“MANCO”). The overall project investment will be \$120 millions. The annual production output value at \$450 millions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 300 万吨钢厂建设项目

Annual output of 3 million tons
steel Plant construction project

可行性研究报告

The feasibility study report

香港矿权交易所技术研究院

HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

May 2014



香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

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HONG KONG MINING EXCHANGE COMPANY LIMITED

Summary of Steel Plant Project

For the South Africa Energy Metallurgical Base Steel Plant Project (“ project ”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“ InvestCo ”) and other investors from the iron and steel industry. The plant can produce 3 million tons of steel (mainly construction steel) per annum. The steel plant (“ plant ”) will be located at the energy metallurgical base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. There are various steel resources and raw material in around the project site. The size of the land for the plant to be developed will be 600 hectares.

The steel resources and raw material from the nearby area around the project site, The water will be sourced from the Limpopo river. Water usage will be 300 million m³ per annum. Power will be supply by the self-established power plant of the South Africa energy metallurgical base. The steel users mainly from South Africa and other African countries. 2600 workers will be employed from Limpopo for the project .Office and living facilities will be provided by the South Africa Metallurgical

Special Industrial Zone Management Limited (“MANCO”). The overall project investment will be \$600 millions. The annual production output value at \$800 millions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 100 万吨不锈钢厂建设项目

Annual output of 1 million tons of stainless steel
plant construction project

可行性研究报告

The feasibility study report

香港矿权交易所技术研究院

HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

May 2014



香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

Summary of Stainless Steel Plant Project

For the South Africa Energy Metallurgical Base Stainless Steel Plant Project (“project”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“InvestCo”) and other investors from the stainless steel industry. The plant can produce 1 million tons of stainless steel billet per annum. The stainless steel plant (“plant”) will be located at the energy metallurgy base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. There are extensive mineral resources for the furnace such as chrome, nickel, manganese, iron and others in around the project site. The size of the land for the plant to be developed will be 500 hectares. The input material for the stainless steel furnace will be sourced mainly from the energy metallurgy base and from the surrounding mines. It is required input material 3 million tons per year, the water will be sourced from the Limpopo river. Water usage will be 2 million m³ per annum. Power will be supply by the self-established power plant of the energy metallurgy base. Stainless steel billet products mainly will be export to the international market. 2000 workers will be employed from Limpopo for the project. Office and living facilities will be provided by

South Africa Metallurgical Special Industrial Zone Management Limited (“MANCO”). The overall project investment will be \$400 millions. The annual production output value at \$2 billions. The period for project development is 3 years.

南非能源冶金基地

South Africa Energy Metallurgical Base

年产 500 万吨石灰厂建设项目

Annual output of 5 million tons of lime Plant
construction project

可行性研究报告

The feasibility study report

香港矿权交易所技术研究院

HK Mining Exchange Company Limited Research Institute of technology

二〇一四年五月

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HONG KONG MINING EXCHANGE COMPANY LIMITED

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HONG KONG MINING EXCHANGE COMPANY LIMITED

Summary of Lime Plant Project

For the South Africa Energy Metallurgical Base Lime Plant Project (“ project ”), the investors will comprise of the South Africa Energy Metallurgical Base Limited (“ InvestCo ”) and other investors from the metallurgy industry. The plant can produce 5 million tons of metallurgy lime per annum. The lime plant (“ plant ”) will be located at the energy metallurgical base of Limpopo Province, with close proximity to the coking coal mines of Universal Coal Plc and Coal of Africa Limited. More than 20 billion tons of limestone reserves in around the project site.

The size of the land for the plant to be developed will be 500 hectares. 10 million tons of limestone per annum will be required which will be sourced from the surrounding limestone mines. The water will be sourced from the Limpopo river. Water usage will be 3 million m³ per annum. Power will be supply by the self-established power plant of the energy metallurgy base. Metallurgy lime will supply mainly to the stainless steel plant of the energy metallurgy base and other users of the metallurgy industry in South Africa. 1500 workers will be employed from Limpopo for the project . Office and living facilities will be provided by the South Africa Metallurgical Special Industrial Zone Management

Limited (“ MANCO ”). The overall project investment will be \$130 millions. The annual production output value at \$200 millions. The period for project development is 3 years.



香港礦權交易所有限公司

HONG KONG MINING EXCHANGE COMPANY LIMITED

South Africa Energy Metallurgical Industrial Zone project

Project Investment Planning

(Chinese JV) SA Energy Metallurgical Investment Limited

SA Limpopo Economic Development Agency

Project investment promotion

Hong Kong Mining Exchange Company Limited

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