



*Environmental Impact Assessment
for a Gas-fired Independent Power
Plant to Support Saldanha Steel and
Other Industries in Saldanha Bay,
Western Cape*

Final Report: V1

ArcelorMittal

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Environmental Resources
Management

Final Report

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<p>This report has been prepared for ArcelorMittal in accordance with the terms and conditions of ERM's contract with ArcelorMittal for submission to commenting authorities and the Competent Authority in support of ArcelorMittal's application for an Environmental Authorisation and for disclosure through the prescribed review process.</p> <p>Any other use, distribution or publication of this report is prohibited without the prior written approval of ERM and ArcelorMittal</p>		Distribution: Public

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List of Abbreviations and Terms

ACC	Air Cooled Condenser
ADI	Area of Direct Influence
AII	Area of Indirect Influence
ALARP	As Low As Reasonably Practicable
AMSS	ArcelorMittal Saldanha Steel
ANSI	American National Standards Institute
AoI	Area of Influence
ART	Antiretroviral Treatment
BAR	Basic Assessment Report
BFS	Bankable Feasibility Study
CAPEX	Capital Expenditure
CBA	Critical Biodiversity Area
CCGT	Combined Cycle Gas Turbine
CFR	Cape Floristic Region
CMDM	Cape Metro District Municipality
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO₂	Carbon Dioxide
COTO	Committee of Transport Officials
CP	Cathodic Protection
CPI	Consumer Price Index
CWDM	Cape Winelands District Municipality
DBSA	Development Bank of Southern Africa
DC	Decision Control
DCS	Decision Control Systems
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DOE	Department of Energy
DTI	Department of Trade and Industry
EAP	Environmental Action Plan
EC	Electrical Conductivity
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
EPC	Engineering Procurement Construction
ERA	Electricity Regulations Act
ERM	Environmental Resources Management
FSRU	Floating Storage Regasification Unit
G2P	Gas to Power
GDP	Gross Development Product
GDPR	Regional Gross Development Product
GHG	Greenhouse Gas
GJ	Giga Joules
GNR	Government Notice Regulation
GUMP	Gas Utilisation Master Plan
HFO	Heavy Fuel Oil
HGV	Heavy Goods Vehicle
HIV/Aids	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
HP	High Pressure
HRSG	Heat Recovery Steam Generator
HV	High Voltage

HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
ICDA	Internal Corrosion Direct Assessment
IDZ	Industrial Development Zone
IPCSA	International Power Consortium South Africa
IPPPP	Independent Power Producers Procurement Programme
IRP	Integrated Regional Plan
ISO	International Organisation for Standardization
kV	kilo Volt
LED	Light Emitting Diode
LHV	lower heating value
LNG	Liquefied Natural Gas
LP	Low Pressure
LPG	Propane
LQSM	Langeberg Quartz Sand Member
LRAS	Langebaan Road Aquifer System
MAE	Mean Annual Evaporation
MCR	Maximum Continuous Rating
MOGS	Mass Oil and Gas Services
MPPM	Muishond Fontein Pelletal Phosphorite Member
MSFD	Multi-Stage Flash Distillation
MW	Mega Watt
NCDM	Northern Cape District Municipality
NDP	National Development Plan
NEMA	National Environmental Management Act
NEMAQA	National Environmental Management: Air Quality Act
NEMBA	National Environmental Management: Biodiversity Act
NEMICMA	National Environmental Management: Integrated Coastal Management Act
NEMWA	National Environmental Management: Waste Act
NERSA	National Energy Regulator of South Africa
NGA	National Groundwater Archive
NID	Notice of Intent to Develop
NOx	Nitrogen Oxide
NSD	Noise Sensitive Developments
OCGT	Open Cycle Gas Turbine
PCS Africa	Power & Combustion Services Africa
PM	Particulate Matter
PV	Photovoltaics
RISFSA	Road Infrastructure Strategic Framework for South Africa
RO	Reverse Osmosis
RoW	Right of Way
S&EIR	Scoping and Environmental Impact Report
SABAP	South African Bird Atlas Project
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SBLM	Saldanha Bay Local Municipality
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SDFP	Spatial Development Framework Plan
SO2	Sulfur Dioxide

TB	Tuberculosis
TDS	Total Dissolved Solids
TNPA	Transnet National Ports Authority
UAV	Unmanned Aerial Vehicle
UNIDO	United Nations Industrial Development Organization
VOC	Volatile Organic Compounds
WCDM	West Coast District Municipality
WML	Waste Management Licence
ZLD	zero liquid discharge

List of Abbreviations and Terms

BAR	Basic Assessment Report
BFS	Bankable Feasibility Study
CBA	Critical Biodiversity Area
CCGT	Combined Cycle Gas Turbine
CFR	Cape Floristic Region
CNG	Compressed Natural Gas
CWDM	Cape Winelands District Municipality
DBSA	Development Bank of Southern Africa
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DOE	Department of Energy
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EPC	Engineering Procurement Construction
ERA	Electricity Regulations Act
ERM	Environmental Resources Management
GDPR	Regional Gross Development Product
GJ	Giga Joules
GNR	Government Notice Regulation
GUMP	Gas Utilisation Master Plan
HP	High Pressure
HFO	Heavy Fuel Oil
HRSG	Heat Recovery Steam Generator
HV	High Voltage
IDZ	Industrial Development Zone
HWC	Heritage Western Cape
IPCSA	International Power Consortium South Africa
IPPPP	Independent Power Producers Procurement Programme
IRP	Integrated Regional Plan
LNG	Liquefied Natural Gas
LP	Low Pressure
NCDM	Northern Cape District Municipality
NDP	National Development Plan
MW	Mega Watt
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEMWA	National Environmental Management: Waste Act
NEMAQA	National Environmental Management: Air Quality Act
NEMICMA	National Environmental Management: Integrated Coastal Management Act
NERSA	National Energy Regulator of South Africa
NID	Notice of Intent to Develop
OCGT	Open Cycle Gas Turbine
PCS Africa	Power & Combustion Services Africa
SAHRA	South African Heritage Resources Agency
SDFP	Spatial Development Framework Plan
S&EIR	Scoping and Environmental Impact Report
TNPA	Transnet National Ports Authority
ToR	Terms of Reference

WCDM
WML

West Coast District Municipality
Waste Management Licence

**PROJECT MAIN FEATURES IN COMPLIANCE WITH EIA GUIDELINES
SUMMARY OF INFORMATION INCLUDED IN THE REPORT**

GENERAL SITE INFORMATION

Affected Farm Portions

The two properties on which the proposed power plant site is located are detailed in *Table 1.1*.

Properties which are intersected by the power plant footprint

Farm Name	Portion Number	Parcel Number	SG Code
Yzervarkensrug	129	Remaining Extent	W014C04600000000012900000
Jackels kloof	195	2	W014C04600000000019500002

The proposed pipeline corridor intersects with the properties as listed in *Table 1.2*.

Properties which are intersected by the pipeline corridor

Farm Name	Portion Number	Parcel Number	Landowner	SG Code
None	0	1185	Transnet	W014C0460000000001185000000
STATE LAND 196	0	196	Transnet	W014C046000000000196000000
Farm 195	195	0	Transnet	W014C046000000000195000001
Farm 195	7	195	Transnet	W014C046000000000195000070
Farm 195	1	195	AMSA	W014C046000000000195000010
Jackals Kloof 195	2	195	AMSA	W014C046000000000195000020
None	0	1132	AMSA	W014C0460000000001132000000
YZERVARKENSRUG 129	0	129	AMSA	W014C046000000000129000001

The proposed feeder transmission line from the power plant to ArcelorMittal Steel intersects with the properties as listed in *Table 1.3*.

Properties which are intersected by proposed feeder transmission line from the power plant to ArcelorMittal Steel

Farm Name	Portion Number	Parcel Number	Landowner	SG Code
YZERVARKENSRUG 129	0	129	AMSA	W014C04600000000012900001
YZERVARKENSRUG 129	3	129	Transnet	W015C04600000000012900030
None	0	1132	AMSA	W014C046000000000113200000

Photographs

Power Plant Site Looking South-east



Centre of Power Plant Site



Photograph taken on the south-east corner of the Power Plant Depicting the Proximity to Saldanha Steel



*Note that this photo was taken at noise measurement location AMMSGTASL02

View from the South towards the Site Alternative (Site A) in the foreground, and the ArcelorMittal Steel Works in the background



View along Pipeline Route



Technical Details

Design Information

Technology type	Open Cycle Gas Turbine – Phase 1 Combined Cycle Gas Turbine – Phase 2
Total Installed Gross Capacity	1605 MW
Total Operating Capacity	1507 MW
Total surface area	55.81 ha (Operation) 83.54 ha (Construction)
Structure orientation	N/ A
Height of power generation buildings (x3)	25 m
Height of Stacks	60m (max)
Area of gas receiving facility	0.18 ha + 0.07
Area occupied by inverter/transformer stations/substations	4.88 ha
Capacity of on-site substation	1 x 132 kV switchyard (Phase 1) and 1 x 400 kV switchyard (Phase 2)
Area occupied by both permanent and construction laydown areas	10.69 ha
Area occupied by ancillary buildings	0.94 ha
Area occupied by Gas Turbine, Steam Turbine and HRSG Island 1	1.89 ha
Area occupied by air cooled condensers	1.56 ha
Area occupied by roads	5.59 ha
Length of internal roads	6,900 m (total)
Internal Roads	
Road type: 8m wide	Length - 4652.2 m; Surface Area - 3.7 ha
Road type: 10m wide	Length - 148.5 m; Surface Area - 0.1 ha
Road type: 12m wide	Length - 1414.2 m; Surface Area - 1.7 ha
Road type: 20m wide	Length - 490.4 m; Surface Area 1 ha
Road type: 32m wide	Length - 120.1 m; Surface Area - 0.4 ha
Proximity to grid connection	150 m to Blouwater Substation
Capacity of transmission line	132 kV connection to ArcelorMittal Saldanha Steel. Existing line to be upgraded.
Length of transmission line	2.5 km
Length of pipelines	4.6 km
Pipeline Construction ROW area	30.49 ha
Pipeline permanent easement area	2.76 ha
Size and number of storage vessels for gas and other fuels	1 x 30m ³ LPG storage tank; 1 X 50 m ³ diesel storage tank during construction
Height of fencing	3 m
Type of fencing	ClearVu Reinforced