



**Murray
& Roberts**



POWER, INDUSTRIAL & WATER PLATFORM
CONTRACTOR OF CHOICE





POWER, INDUSTRIAL & WATER PLATFORM

OVERVIEW

The **Power, Industrial & Water Platform** operates predominantly in South Africa and sub-Saharan Africa. The platform's service offering includes feasibility studies, detailed engineering, procurement, construction, commissioning, and repairs and maintenance work.

The platform is structured as a project execution business across all focus sectors. It offers EPC and operations and maintenance services supported by its capabilities and extensive experience, complimented by strategic partnerships and joint ventures.

Power, Industrial & Water Platform capabilities:

- Feasibility Studies
- Detailed Engineering
- Procurement
- Construction
- Commissioning
- Repair and Maintenance
- Operations

The businesses within the **Power, Industrial & Water Platform** are:

- Aquamarine Water Treatment
- Murray & Roberts Mozambique Limitada
- Murray & Roberts Power & Energy
- Murray & Roberts Water
- Opti Power Projects
- Wade Walker

MURRAY & ROBERTS GROUP

PLATFORM	CAPABILITIES	GEOGRAPHY
ENERGY, RESOURCES & INFRASTRUCTURE	+ Detailed engineering + Procurement + Construction + Commissioning & maintenance	AFRICA AMERICAS ASIA AUSTRALIA EUROPE
MINING	+ Detailed engineering + Procurement + Construction + Commissioning & maintenance + Operations	AFRICA AMERICAS ASIA AUSTRALIA EUROPE
POWER, INDUSTRIAL & WATER	+ Detailed engineering + Procurement + Construction + Commissioning & maintenance	AFRICA

POWER, INDUSTRIAL & WATER

Murray & Roberts Murray & Roberts
Power & Energy

WADE WALKER

Murray & Roberts Murray & Roberts
Water

OPTIPOWER

AQUAMARINE
WATER SOLUTIONS



SUSTAINABILITY

SAFETY

People remain our most valuable asset and the safety of employees and stakeholders is non-negotiable.

The platform prioritises the implementation of fatal risk management programmes to prevent serious incidents and fatalities on projects

Stop.Think.Act.24/7 is a widely-recognised Murray & Roberts health and safety brand developed to educate and motivate employees to be responsible for their own and their colleagues' safety in the work environment and also at home. "Act" emphasises the importance of taking action to correct unsafe conditions and behaviours, as well as recognising positive behaviour, while "24/7" highlights the need for safety awareness at all times.

The **Zero Harm through Effective Leadership Programme** aims to increase leadership visibility and to continuously develop a culture of safety.

Our safety goal is **Zero Harm**. Safety and performance work in unison and every employee's commitment to accountability and responsibility to ensure safety is a tenet of our safety philosophy.

All businesses within the Power, Industrial & Water Platform are ISO 45001, ISO 9001 AND ISO 14001 certified. The platform also maintained the prestigious South African Institute of Welding ISO 3834 accreditation during the 2019 financial year.

HEALTH

The health and wellness of our employees is non-negotiable. We have adopted a holistic approach to health by providing a comprehensive wellness programme to employees and their dependents. We implement healthcare education and awareness initiatives across project sites to encourage healthy lifestyle choices and behaviours.

The Occupational Medicine Programme uses pre-employment, periodic and exit medical examinations to prevent and manage potential workplace-related diseases and other conditions early.

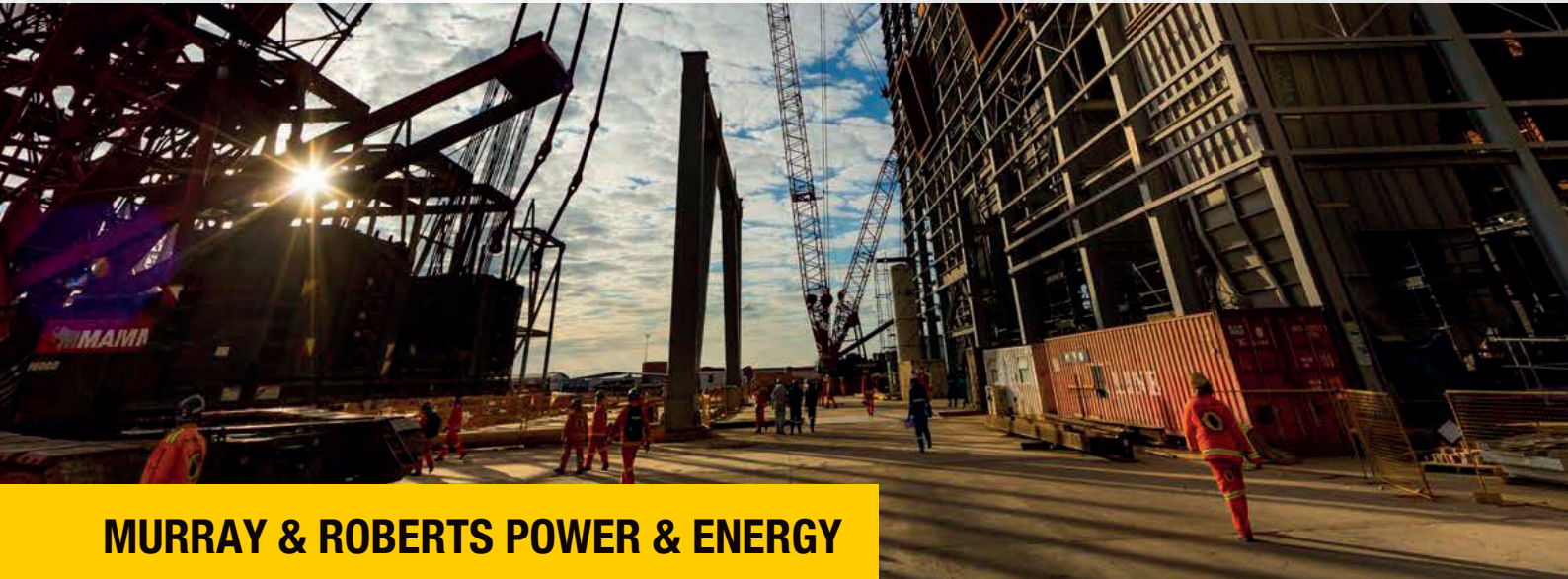
ENVIRONMENT

The Power, Industrial & Water Platform adopts a proactive environmental management policy and implements industry best practice to minimise the impact of our business activities on the environment.

REPUTATION

The principle of *Engineered Excellence* informs all our decision-making. It means we engineer or plan everything we do, in such a way that we achieve an outcome of excellence.

Murray & Roberts offers industry best practice in technical and supervisory training across a wide field of disciplines and it is an integral part of our commitment to train and upskill local employees. Our training programmes are critical to the platform's project delivery success and provide skills training and livelihood to the local communities on our projects. The platform works closely with clients, local community forums and leaders to manage localisation expectations and to provide support for local suppliers.



MURRAY & ROBERTS POWER & ENERGY

Murray & Roberts Power & Energy is an EPC contractor of choice, serving the South African and African markets. Our South African offices, based in Johannesburg, provide a portfolio of services to our clients, utilising its market and sector experts, in multidisciplinary engineering, procurement and construction together with strategic global partnerships.

Murray & Roberts Power & Energy has project management capabilities across the entire project life-cycle, ranging from conceptual design, pre-feasibility and feasibility studies, basic and detail engineering, procurement, construction, commissioning and start up, operations and maintenance (including asset renewal/refurbishment) and asset retirement. It is supported by its existing capabilities, capacity and project execution experience and complimented by strategic partnerships and joint ventures.

The company has five businesses sectors:

- Power
- Oil & Gas
- Electrical & Instrumentation
- Transmission & Distribution
- Resources & Industrial

Power

Through its qualified and experienced technical and management teams, and strategic technology partnerships, the company is able to provide complete total solutions to power utilities, independent power producers, industrial plants and other potential clients across technologies including coal, gas, nuclear, and renewable energy including concentrated solar and biomass.

Energy (Oil & Gas)

In the oil & gas sector, the company has undertaken several downstream projects, including special applications such as modular mini-refineries and the revamping and installation of refinery units. Murray & Roberts Power & Energy support large projects nationally, through its established fabrication shop, based in Secunda.

Electrical & Instrumentation

Murray & Roberts provides clients with a broad range of services in the electrical & instrumentation, engineering, design and construction fields, serving the mining, water treatment, petrochemical, iron and steel, sustainable energy, and power markets.

Transmission & Distribution

Our primary focus is on Electrical Balance of Plant and overhead line connection for the Renewable Energy Independent Power Producer Programme in South Africa. We also offer specialty skills to developers of captive or self-generation projects.

Resources & Industrial

An integrated approach to structural, mechanical, platework and piping (SMPP) solutions within the mining, minerals beneficiation, petrochemical and energy sectors as well as the pulp and paper, and sugar industries. This coupled with extensive experience allows Murray & Roberts Power & Energy to successfully undertake contract management of projects from the shop detailing phase through to final on-site commissioning and handover.

PROJECTS



Medupi & Kusile Power Stations

Client: Hitachi/Eskom

Location: South Africa

Scope: Detailed engineering, fabrication, construction management, erection & site support of boiler units.

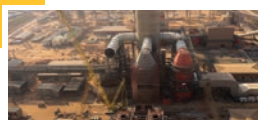


New Multi-Product Pipeline

Client: Transnet

Location: South Africa

Scope: Heidelberg Tank Farm – engineering, fabrication & erection of 10 tanks.



Wet Flue Gas Desulphurisation

Client: General Electric (Alstom)

Location: South Africa

Scope: WFGD Absorber & Duct fabrication, installation and erection.



MGO Storage & Distribution

Client: Ghana Oil Company

Location: Takoradi, Ghana

Scope: Construction and detailed engineering of 4.5 million capacity marine gas oil tank terminal.

MURRAY & ROBERTS WATER

Murray & Roberts Water has the capability and expertise to deliver integrated water and waste water treatment solutions in the following market sectors:

- Mine Water Treatment
- Sea Water Desalination
- Industrial Effluent Treatment
- Municipal Water and Waste Water Treatment

Murray & Roberts Water provides complete water and waste water treatment solutions through the selection and integration of appropriate technology combined with a suite of flexible commercial models. This approach aims to meet the needs of its clients and achieve specific project objectives whilst ensuring that key risks are identified and allocated to the party best suited to manage them. Potential commercial models include:

- Design Build
- Design Build Operate
- Design Build Operate Transfer
- Rental
- Public Private Partnerships

Murray & Roberts Water is committed to the Group's principle of *Engineered Excellence* which informs all our decision-making. It means we engineer or plan everything that we do, in such a way that we achieve an outcome of excellence.

ORGANICA WASTE WATER TECHNOLOGY

Localised wastewater treatment specialist Organica brings a highly imaginative approach to wastewater treatment in urban and suburban areas. Organica's treatment facilities utilise active biofilms on natural (plant) and/or engineered (patented biofiber media) root structures, all housed in a fully-enclosed, odourless facility. The result is a solution which offers 50-75% reduced physical footprint compared to conventional wastewater treatment solutions, with up to 30% reduction in operational costs, all in the form of a pleasant botanical garden-like environment that enables the wastewater treatment plant to be located virtually anywhere, thus substantially lowering infrastructure costs to connect to customers and enhancing land value around the facility.

Murray & Roberts Water holds an exclusive license agreement for the Organica technology in South Africa and non-exclusively for the SADC region.

PROJECTS



Organica Bluehouse Waste Water Treatment Plant

Client: GE Engineering
Location: South Africa

Scope: Design, supply, construct, commission and operate and maintain for a twelve month period including publication of performance results to the broader water industry.



Ahafo Mine Water Treatment Plant

Client: Newmont Ghana Gold Limited
Location: Ghana

Scope: Design, supply, install and commission a skid-mounted reverse osmosis plant to treat contaminated mine water.



Bakubung Waste Water Treatment Plant

Client: Bakubung Minerals (Propriety) Limited
Location: South Africa

Scope: Design, supply, construction and commissioning of a membrane bioreactor sewage treatment plant including the main sewer pipeline and maintenance support.



Vincent Pallotti & Kingsbury

Client: Life Healthcare
Location: South Africa

Scope: Design, supply, install, commission and operate and maintain containerised borehole water treatment plants at both hospitals.



AQUAMARINE WATER SOLUTIONS

Since 1999, Aquamarine Water Solutions has supplied water treatment solutions throughout Africa. We are a trusted supplier of standard and custom designed water treatment plants, as well as an approved distributor of quality brand components, chemicals and accessories.

Our capabilities include:

- expertise in the design, manufacture, supply, installation, commission, operation, service and maintenance of water treatment solutions
- structured technology and commercial packages to meet specific customer requirements
- a lifecycle offering aimed at ensuring optimal productivity and reduced lifecycle costs

Engineered Excellence guides Aquamarine Water Solutions in delivering quality engineered solutions. We ensure outstanding quality when manufacturing plants and selecting components and chemicals.

Water Solutions

- Water Reuse
- Water Recycling
- Water Scarcity (Borehole and desalination)
- Cooling and Boiler Water Treatment
- Waste Water Treatment

Water Technologies

- Filtration
- Membrane Separation
- Flocculation and Sedimentation
- Oxidation and Disinfection
- Ion Exchange
- Membrane Bio Reactors

Products & Services

- Water & Wastewater Treatment
- Chemicals
- Components
- Operations & Maintenance
- Finance Models

Aquamarine Water Solution's head office is located in Johannesburg, South Africa. We have agents and distributors throughout South Africa and sub-Saharan Africa.

PROJECTS



Desalination / Reverse Osmosis System

Client: Vale

Location: South Africa

Scope: Vale required potable water for construction camp use – both for construction and potable water for human consumption.



Reverse Osmosis System

Client: Department of Water Affairs

Location: South Africa

Scope: The upliftment project included a water treatment plant and Reverse Osmosis was used to remove nitrates and reduce overall TDS to acceptable potable standards.



Reverse Osmosis System (containerised).

Client: Knapdaar Farm

Location: South Africa

Scope: System is used to treat boreholes with a high TDS to acceptable irrigation standards which in turn increases crop yields significantly.



Reverse Osmosis System (containerised)

Client: Stephan & Seun Farm

Location: South Africa

Scope: Our clients required desalination of saline boreholes for irrigation use. Two 50 000l/hr RO system were supplied to treat two separate boreholes.



OPTI POWER PROJECTS

Building and upgrading transmission lines, Substations and Fibre Optic Networks are major undertakings and OptiPower has the knowledge and experience needed to handle any project without limits due to the site conditions and voltage level. Working with OptiPower means that you don't have to coordinate with multiple consultants and suppliers.

OptiPower's core business consists of:

- Construction of MV and HV Power Lines (Distribution and Transmission)
- Construction of MV and HV Substations (Distribution and Transmission)
- Construction of Overhead and underground Fibre Optic networks (OPGW, ADSS, and Blown Fibre, etc.)

OptiPower also specialises in:

- Assessments, Refurbishment and Maintenance of MV and HV Power Lines (Distribution and Transmission)
- Assessments and Refurbishment of MV and HV Substations (Distribution and Transmission)
- Demolishing of existing HV Substations and Power Lines as well as MV Reticulation Networks

OptiPower also has its own in-house engineering department that offers full turn-key design and specialised construction solutions.

PROJECTS

132kV Mizpah Masinga (Eskom)
400kV Gautrain Tower heightning (Eskom)
132kV Firgrove - Lourensriver (Eskom)
66kV Vryheid - Riviersonderend (Eskom)
220kV Gingindlovu Loop In / Out
66kV Bluedowns Esethu Line (Eskom)
66kV Mpilo Line (Eskom)
400kV Ingula Loop In Project (Eskom)
400kV Eros Vuyani (Eskom)
400kV Hendrina Gumeni (Eskom)
132kV Melkhout Kouga (Eskom)
132kV Gibson Bay (Eskom)
400kV Gromis - Oranjemond (Eskom)
400kV Nieuwehoop - Upington (Eskom)



WADE WALKER

Wade Walker (A division of Murray and Roberts) provides major individual clients with a broad range of services in the Electrical and Instrumentation, Construction Fields, serving the Mining, Water Treatment, Petrochemical, Iron & Steel, Sustainable energy & Power markets since 1981.

Experience in the following fields

ELECTRICAL & INSTRUMENTATION construction capability in these fields; surface & underground

- Furnace
- Ausmelt Furnace
- Converters
- Bag filters
- Precipitators
- Flash Dryers
- Dryers
- Ball / Rod Mills
- Crushers
- Conveyor Systems
- Floatation Plants
- Compressors
- Reagents Plants
- IX & SX Plant
- SO 2 Plants
- Acid Plants
- Copper Bands
- Cooling Towers
- Thickeners
- Tailings
- HV, MV & LV Substation
- Winders
- Shafts and Headgear Equipping
- Change Houses
- Office Blocks
- Ammonium Plants

PROJECTS



Medupi Power Station
Client: General Electric
Location: South Africa
Scope: Electrical and Instrumentation



Husab Uranium Process Plant
Client: Swakop Uranium Limited
Location: Namibia
Scope: Electrical and Instrumentation



Tsumeb Sulphuric Acid Plant
Client: Dundee Precious Metals
Location: Namibia
Scope: Electrical and Instrumentation



Sasol Secunda
Client: Air Liquide
Location: South Africa
Scope: Electrical and Instrumentation

