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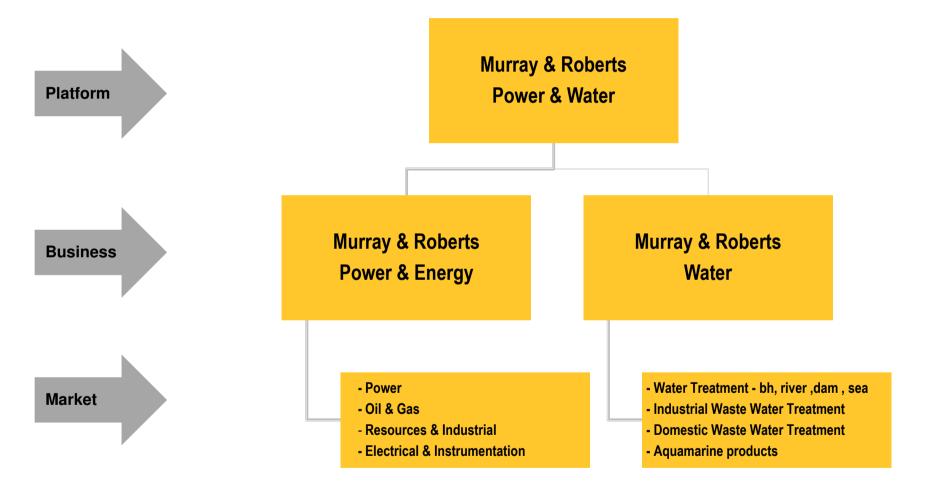
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### PLATFORM STRUCTURE









BUSINESS	CAPABILITIES	GEOGRAPHY	Project value chain
Murray & Roberts Power & Energy  Power  Oil & Gas  Resources & Industrial Electrical & Instrumentation  Murray & Roberts Water  Murray & Roberts Water  Aquamarine	<ul> <li>Feasibility Studies</li> <li>Detailed Engineering</li> <li>Procurement</li> <li>Construction</li> <li>Commissioning</li> <li>Repair &amp; Maintenance</li> </ul>	Sub-Saharan Africa, predominantly:  • South Africa • Botswana • Namibia • Mozambique • Ghana	Design and Engineering / Technical Consulting  Process EPC  Construction / Manufacturing / Fabrication  Repairs / Operations / Maintenance / Service



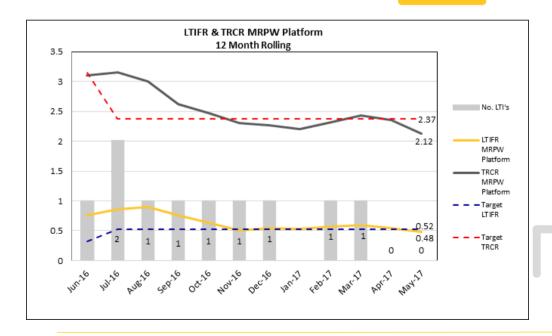
### **HEALTH, SAFETY & ENVIRONMENT**



LAGGING INDICATORS

## RECORDED 12 MONTHS ROLLING END MAY 2017

↑ LTIFR of 0.48 vs. Target 0.52 ↑ TRCR of 2.12 vs. Target 2.27



Kusile achieved > 2.2 million man-hours
114 days without a LTI as at February 2017

Medupi achieved > 3.8 million man-hours hours 182 days without a LTI at end November 2016

Secunda O&G achieved > 270 000 man-hours hours without a LTI at end May 2017

Train 17 achieved > 136 269 million man-hours
134 days without a LTI as at May 2017

Kusile WFGD E&I achieved > 126 976 man-hours and 596 days without a LTI at end May 2017

Kusile WFGD Mechanical achieved > 752 524 manhours without a LTI end May 2017

### **Level 4 incidents**

Zero incidents for the quarter, 2 for FY2017

### LTI Trend

Hand and Finger injuries!





### POWER SECTOR



### SOUTH AFRICA REMAINS FOCUS OPPORTUNITY COUNTRY

## 4600MW

**Determination Window 2 IPP Coal** Baseload and GtP Projects in Richards Bay and Coega

## **2383MW**

Remaining 37 DoE's REIPP projects yet to be signed by **Fskom** 

## **ESKOM**

Repair and maintenance estimated R10 billion per annum.

Estimated to peak at R20 billion By 2020

## **IRP2050**

Under public review. Proponent for Gas to Power and Renewable energies

### **Outlook & Key Drivers**

- Eskom Board approves Fleet Renewal Strategy based on economic viability-life extension to ensure continued reliability of the power stations
- South Africa's Coal Baseload Independent Power Producer Procurement Programme (CBIPPPP) Window 1 two preferred bidders .Window 2 to be announced later in 2017
- Huge maintenance backlog in power plants in SSA including SA.

#### **Differentiators**

- Recent relevant experience in power plant SMEIPP compared to competitors
- Appetite for taking up EPC role with in-house key skills and partners
- Multi-disciplinary offering through collaboration of Group entities
- Experience and track record in implementing large projects

#### Value Chain

- EPC wrap on projects via partner companies
- Construction (Greenfield) SMEIPP
- Repair & Maintenance (including refurbishment)
- Commissioning Services
- **Outage Shutdowns**
- Operation & Maintenance (O&M)

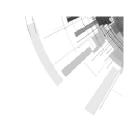
### Clients | Partnerships | JV's

- Partnerships
  - Black & Veatch (Coal, Gas, Transmission)
  - Sener (Solar)
  - Shanghai Electric Corporation (Coal, Gas, OEM, Transmission)
- Eskom
- EPC's (Cobra, Sener, Doosan, GE, etc)
- Developers (e.g. ACWA,, Emvelo, Marubeni
- Strategic Bodies/Clients (Transnet, CEF,, Lenders, IPP Office, DoE, NERSA, etc)



### **OIL & GAS SECTOR**

### FOCUSED ENGAGEMENT IN FOCUS COUNTRIES



## 2019/2020

South Africa will initiate the development of a Gas Industrialization Unit resulting from LNG imports

## 2018 and beyond

Sasol significant stay in business spend at Secunda, Sasolburg & Natref operations, expand registration offering

# **Bulk Storage Tanks**

New build and refurbishment opportunities emerging across continent

## 2018 and beyond

Gas commercialisation projects to kick off in East Africa
Clean fuels will provide refinery upgrade opportunities

### **Outlook & Key Drivers**

- Refresh strategy to deploy an integrated full project cycle Group offering, to include Clough front end and upstream experience
- Gas to Power and LNG import will bring infrastructure opportunities – suited to Group capabilities
- Sasol stay in business spend will provide opportunities
- Bulk storage in SSA and SA opportunities
- Ghana investment in the Tema and Takoradi port will open up downstream infrastructure opportunities

#### **Differentiators**

- Capability and experience availability within the group (M&R Group companies)
- Petrochemical related activity for Sasol in Secunda is transferable to Sasolburg
- Relationships with EPC and trading houses and major IOC's via Clough

### Value Chain

- Small EPC
- SMEIP
- Repair , shutdown and maintenance
- Vessel fabrication and repair

## Clients | Partnerships | JV's

- Group Companies
- Sasol
- Transnet
- Transnet International
- CB&I
- IOC"s
- Tullow Oil
- Vopak
- Engen
- Air Liquide
- WorleyParsons



### WATER SECTOR

### GROWTH FROM WASTE WATER TREATMENT OPPORTUNITIES IN SA

## **ORGANICA**

Demo plant site secured at Verulam WWTP in eThekwini Municipality

## LIFE HEALTH

commits to feasibility study to provide water security measures to all its 93 hospitals

## R670bn

Department of Water & Sanitation's estimate to get SA's WWTP's back to compliant operation

## 15bn m<sup>3</sup>

is SA's current potable water allocation - 17.7bn m<sup>3</sup> is the estimated demand for potable water by 2030

83% of SA's

companies say they are exposed to water risk

### **Outlook & Key Drivers**

- WASTE WATER Upgrading opportunities driven by Government priority to ensure environmental compliance and reuse
- INDUSTRIAL opportunities driven by environmental compliance, water security and recycling
- MINE WATER Sector has been quiet over past 18 months. Drivers are environmental compliance. dewatering to mine areas and reuse. Long Term solution for treating AMD in Wits Basins likely to come to market in 2 – 3 years
- SEA WATER DESALINATION opportunities will be ad hoc small containerised plants as government policy is that Sea Water Desalination is a last resort
- PPP's are coming

### **Differentiators**

- Organica technology for waste water treatment
- RMB / MRW offering to industrial sector
- Access to Osmoflo plants for emergency situations
- Stock holding of selected Aguamarine products
- Chiefkazi relationship to penetrate and grow business in municipal sector
- Full value chain offering

#### Value Chain

- Development (Feasibility Studies)
- Engineering
- Manufacturing
- Construction
- Operation & Maintenance (O&M)
- Service

### Clients | Partnerships | JV's

#### **PARTNERSHIPS**

- Hyflux (Large Sea Water Desal)
- Organica (Waste Water Treatment)
- RMB (Industrial Sector)
- Osmoflo (Emergency Sea Water Desal)
- Chiefkazi (Black Woman-Owned Company)
- Lektratek JV (Zandvliet WWTP)

#### **CLIENTS**

- TCTA
- Skorpion Zinc
- Netcare
- Life Health
- Sasol
- City of Cape Town
- **ERWAT**
- Nelson Mandela Bay
- Rand Water

- Newmont
- AngloGold Ashanti
- Mediclinic
- Growthpoint
- Eskom
- · City of Tshwane
- eThekwini Municipality
- FIPAG
- Umgeni Water



### **RESOURCES & INDUSTRIAL SECTOR**





Historical and new clients with regards to Mining / Mineral Beneficiation and Industrial Sectors

### MARKET OUTLOOK

### **Tough Market Conditions:**

**O**pportunities are emerging, however competition and price is a challenge

### **Commodity Trend Focus:**

Coal, Graphite, Zinc, Gold, Copper and Iron Ore

### **Regional Focus:**

Namibia, Zambia, Botswana, Tanzania, Ethiopia & Mozambique

### **INFRASTRUCTURE**

Materials Handling opportunities

### **Outlook & Key Drivers**

- Re-enter the metals and mineral space in South Africa and neighbouring countries
- High focus in the short term on real SMP and E&I construction opportunities
- Partnering for specific EPC opportunities
- Engaging junior and mid tier miners early to assist in the development of their businesses to secure exclusive downstream implementation (E, P, C and O&M)

#### **Differentiators**

 Demonstrate superior construction delivery ability with key known individuals and proven track record

#### Value Chain

- SMP
- E&I
- EPC
- R&M

#### Clients

- Exxaro
- Vedanta
- Resgen
- Coal of Africa
- Richards Bay Minerals
- Paper & Pulp (Sappi & Mondi)
- Sugar (Tongaat Hulett, Illovo, TSB)

#### Partnerships | JV's

- EPCM's
  - WorelyParsons
  - Hatch
  - DRA
  - Fluor
  - Amec Foster
     Wheeler
  - KBR

- EPC's
  - Sandvic
  - Sedgemen
  - FL Smidt
  - ELB
  - Thyssen Krupp
  - DRA
  - Fluor

ENGINEERED EXCELLENCE



### **ELECTRICAL & INSTRUMENTATION SECTOR**

**ROLL OUT TRANSMISSION PROJECTS TO SUPPORT E&I GROWTH** 

IN THE MEDIUM TERM

## 2018 and beyond

Focused and disciplined support to Sasol via Secunda operations with E&I capabilities

### **TRANSMISSION PROJECTS**

Strategic partnership with Shanghai Electric in Africa

### **IPP PROJECTS**

Support internal M&R IPP projects

### **Outlook & Key Drivers**

- Re-enter the metals and mineral sector in South Africa and neighbouring countries -Mozambique, Namibia, Zambia and Botswana
- Enter into the Oil and Gas sector within South Africa and Mozambique
- Leverage off and support internal M&R power and water projects
- Shut down work opportunities on existing fleet with Eskom and petro chemical refineries
- Support in IPP program

#### **Differentiators**

- Track record 33 years of experience, involved in mining and minerals, power and energy, iron and steel, water treatment, industrial and transport infrastructure sectors
- Extensive African experience
- Core of experienced and highly competent field personnel (permanently employed)

#### Value Chain

- FPC
- **SMFIPP**
- R&M

### Clients | Partnerships | JV's

- **Group Companies**
- Alstom
- Actom JV
- Anglo Coal
- Bombela CJV
- DeBeers
- First Quantum
- Goldfields
- Impala Platinum
- Newmont
- Eskom
- Exxaro



### SUB-SAHARAN AFRICA COUNTRY FOCUS

#### Ghana

- Refined business model fully compliant M&R Ghana entity with all statutory requirements
- · Maintain, enhance and leverage GOIL relationship in Takoradi Port and Ghana
- Partner with Cummins for gas engine power plants
- Progress waste to energy development
- · Chemical, membrane and Aquamarine product sales via Genysis and DOW

#### Namibia

- · Tracking Kudu GtP development
- · SMEIPP construction offering to mining and industrial clients
- Mine water treatment, sea water desalination. waste water treatment (Windhoek) and industrial water treatment

#### Botswana

- Build R&M presence on the back of Morupule A project
- Operations proposal on Moropule A with Worley Parsons.
- Continue to engage EPC's for new build at Morupule B 5 8
- Continue to position group offering for Tshele Hills Bulk Storage.
- Mine water treatment opportunities

#### Kenya

- Focus on large scale transmission build
- Participate in government auctions for procurement EPC for geothermal energy

#### Mozambique

- Refined business model fully complaint M&R Mozambique entity with all statutory requirements
- Continue to follow LNG project roll out and associated activity
- Focus on gas to power opportunities
- Follow and engage with Sasol onshore gas developments.
- Focus on large scale transmission build
- SMEIPP construction offering to mining and industrial clients
- Initially focussed on private sector opportunities whist government funding constraints are resolved

#### South Africa

- Eskom repair & maintenance opportunities on aging fleet
- DOE Solar and Coal IPP participation
- · Participate in the DOE gas to power programme
- Maintain and enhance presence at Sasol Secunda & Sasolburg operations
- SMEIPP construction offering to mining and industrial clients
- Municipal waste water treatment driven by reuse requirement and recycling of industrial effluent will be key market drivers in SA

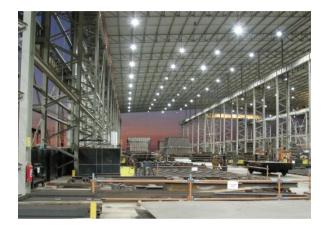






### POWER PROGRAMME





### Kusile & Medupi **Fabrication**

Two permanent dedicated ducting fabrication facilities are present on each site. The facilities receive raw plate material and fabricate complex large ducting components to detailed engineering drawings

**Fabrication and Assembly** 



**Medupi Power Station** 



**Kusile Power Station** 

Scope of services includes full construction management, projects services, subcontract management, quality control, HSE, materials control and handling, facilities management and self perform DFL

Centralised management control of all crane coordination, lifting and rigging activities

Scope of work includes supply and erection of structural steel work, erection of ducting components. Installation of free issue HP / LP piping components, pressure parts and mechanical items

**SMPP Construction** 



**POWER** 







### **Morupule A Power Station**

Return to service of key equipment and boiler components with Doosan Heavy Industries & Construction for **Botswana Power Corporation** 

Installation of mechanical equipment construction management and commissioning support services

### **Kusile WFGD Units 2 & 3**

Construction of Wet Flue Gas Desulfurization (WFGD) units 2 and 3 for GE Alstom S&E Africa

**SMP Construction** 



SOG AND OIL & GAS









### **Sasol Environment**

Sasol VOC Abatement

Sasol CTFE

**SMEIPP Construction** 

### **MGO Storage Facility**

MGO (Marine Gasoil) Storage and dispensing facility to serve three berths within the Takoradi Port, Ghana for GOIL.

**EPC** 











### Medupi Boilers (I)

17th O2 Train (E&I)

**WFGD Electrics (E)** 

Joint venture with Actom for supply and installation of instrumentation cabling, DB's and junction boxes on Medupi boilers for GE Alstom

**I Construction** 

Supply, installation and commissioning of the main transformers, MV, LV 400/230/12V electrical equipment and cable reticulation and all instrumentation including fibre optics for the Process Plant Areas for Air Liquide in Sasol Secunda.

**E&I Construction** 

Design and construction of electrical reticulation for the WFGD Units 1 – 6 at Kusile for GE Alstom

**E** Construction



### MURRAY & ROBERTS WATER





### **Bakubung MBR Plant for Wesizwe Platinum**

MRW's first MBR reference plant and currently in commissioning phase



Design, supply, build, commission and 12 month operation supervision of a membrane bio-reactor waste water treatment plant for Wesizwe Platinum at their Bakubung Mine near Rustenburg.

Design, supply, install & commission







### PROJECT DEVELOPMENT – NEAR ORDER





MARKET ANALYSIS

**FEED** 

**DETAIL DESIGN** 

PROCUREMENT

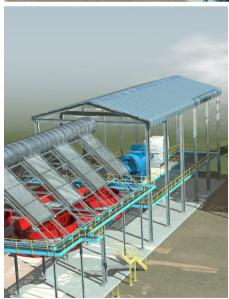
#### PROJECT DEVELOPMENT

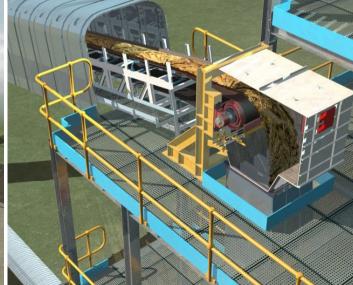
#### PROJECT IMPLEMENTATION

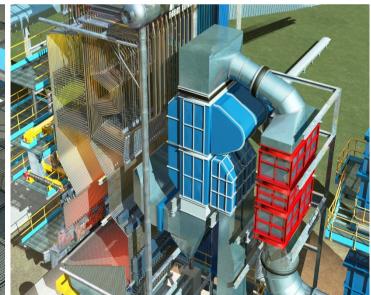


#### REPAIRS, OPERATIONS & MAINTENANCE

- The proposed project is a 5MW thermal biomass power plant fired from wood waste.
- The wood waste will include bark, chips and sawdust, which will originate from several saw mills and local wood processors from within the George Municipal Area and potentially Southern Cape Region.







**ENGINEERED EXCELLENCE** 



### **DESIGN & CONSTRUCT- NEAR ORDER**

ZANDVLIET WWTP MBR UPGRADE - COCT



MARKET ANALYSIS

FEED

DETAIL DESIGN

PROCUREMENT

CONSTRUCTION

COMMISSIONING

**OPERATIONS** 

PLANNED SHIUTDOWNS MAINTENANCE & REPAIRS

PLANT CLOSURES

#### PROJECT DEVELOPMENT



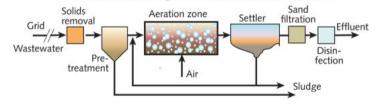
#### PROJECT IMPLEMENTATION



#### **REPAIRS, OPERATION & MAINTENANCE**

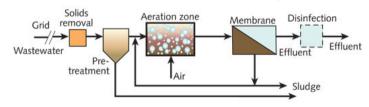
- Upgrade of existing municipal wastewater treatment plant from 72MLD to 90MLD....MBR and AST Plant
- Will be one of the largest MBR Plants in RSA
- MRW LWT Consortium currently being engaged on Technical Clarifications
- High potential for future work at this site as many aspects of the initial design have been pre-sized for 150MLD

#### (a) Activated Sludge Treatment (AST) Process





#### (b) Membrane Bioreactor (MBR) process









### TARGET OPPORTUNITIES



### EXPECTED TO COMMENCE WITHIN THE NEXT 2 TO 3 YEARS













### □ Power – No. of Key Prospects = 8

- Positioned for REIPPP, Base Load Coal, Co Gen and Gas to Power.
- Real and current experience in power plant construction.
- EPC capability for R1b range power plant opportunities.
- OEM partners for large scale power plant.
- MWES O&M (joint venture with Worley Parsons)

### □ Water – No. of Key Prospects = 11

- Waste water treatment sector opportunities MBR and Organica technology deployment – CoCT planning water reuse at its WWTPs
- Industrial users water security water treatment solutions reuse / recycle model
- Modular / containerised rapidly deployed desalination plant
- Large scale Wits Basin AMD treatment gaining momentum via TCTA appointment

### Complimentary markets - No. of Key Prospects = 14

- Positioned for the turn in commodity trend to deploy EPC and SMEIPP Construction delivery models
- Focus on Repair, Operations & Maintenance opportunity



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## BUSINESS PLATFORM PRESENTATIONS

Power & Water Platform – Steve Harrison

This presentation is available on www.murrob.com