



Valves Presentation to Industry

Supplier Development and Localisation: Strategy and Planning

Eskom sourcing strategy / procurement and requirements,
designation and proposed solutions

28 August 2012

Criteria

Significance to Eskom

Potential local development impact

Valves

- Valves represent a significantly large Opex and Capex spend of Eskom Generation business. It has also been noticed that there is a high import leakage with regards to the procurement of valves in Eskom.
- Eskom will be spending about R1.47bn between FY12-FY17 on valves and valve spares and about R2bn between FY18-FY2027 as a result of new build projects and on-going operational and maintenance projects at existing power plants
- The current procurement process is inadequate in addressing the future procurement of general and specialised valves as well as spares, in consideration to the local capacity and supplier development.
- Opportunity to further improve local development where:
 - There is already established local manufacturing base
 - Valves are imported
 - Valves sub-components are imported
- “Revive” the foundry industry to acceptable standards
- Potential to develop existing local supplier to export, especially to African markets
- Potential to develop agents into manufacturers or refurbishment companies
- Develop new valve manufacturers to increase the competitiveness of the market if appropriate
- Contribute in the development of scarce skills for the country

Although a decline is expected in valve demand between 2008 and 2014, the TIPS¹ report for 2011 sheds new light

- While the Frost & Sullivan's forecast for valves' demand shows little or no growth for the period 2008-2014, the valves industry expects a much higher growth rate as per the Trade and Industrial Policy Strategies (TIPS) report of July 2011, emanating from the fact the Government of the Republic of South Africa is embarking on a protracted infrastructure development programme.
- The TIPS study aimed to investigate the viability of designating certain products (incl. valves) and legislative, procedural and institutional changes required for:
 - Procurement in State Owned Companies(SOCs), national, provincial and local governments, municipalities and state agencies and
 - The capacity and capability of the relevant manufacturing sector(s) to competitively participate in the supply of the said designated products and deliver high levels of local content in relation to the strategic fleet procurement of SOCs, national, provincial and local governments, municipalities and state agencies.

¹ Trade and Industry Policy Strategies July 2011

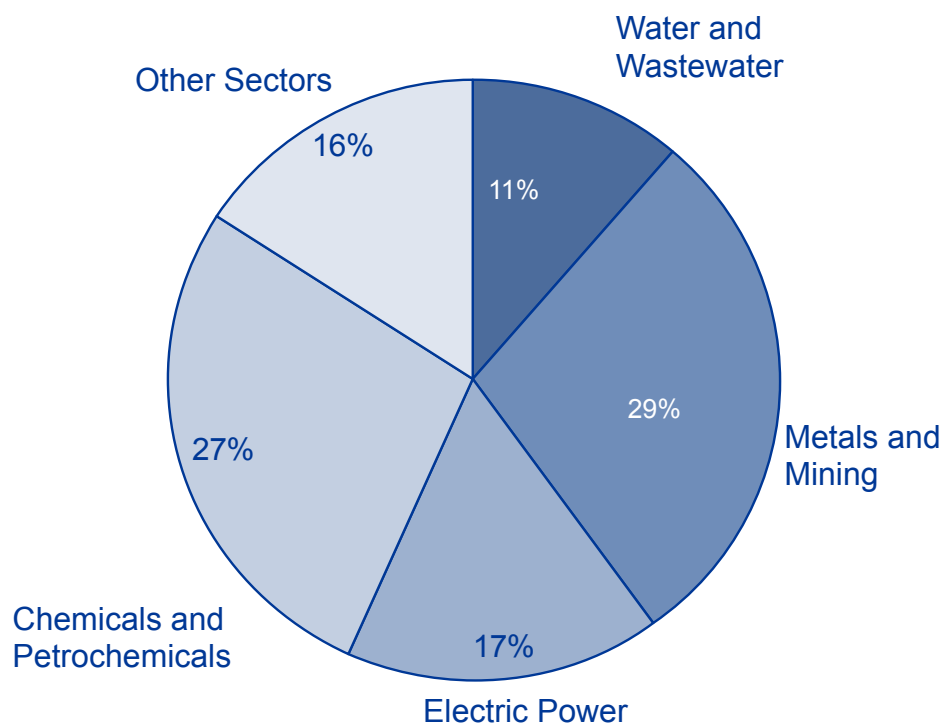
With the advent of new projects in South Africa, the valves market is also set to expand

- The significant share of revenues of the on/off valves is attributed to the wide application of on/off valves products. This market however is expected to witness a **decline from 47% in 2007 to 44,9% in 2014** attributable to the reduced demand from metals, minerals and mining sector.
- Control valves are expected to witness an increases in revenue shares from 2008 to 2014 when compared to the on/off valves product segment. This **increase in demand emanates from the power generation and chemicals and petrochemicals industries**. Massive capital expenditure projects sectors to be implemented. The control valves market's revenue share is expected to rise from 30% in 2008 to 31.3% in 2014
- Even though the Frost & Sullivan study has indicated a **decline in growth of 3.6% from 2007 to 2014** for the on/off valves and a modest increase of 1% in revenue share for the same period;
- Both these categories will realise significant increase in growth post 2014 particularly from the Power Generation and Water & Wastewater sectors with IRP 2010 and The Department of Water Affairs projects in the pipeline

Eskom has traditionally accounted for 17% of the valves and actuator market in South Africa...

Valves and Actuators Market: South African Consumption

% Revenue by End-User Market



- The significant portion of revenues in the metals and mining sector is due to the demanding conditions and emphasis on efficiency and safety within the sector.
- The same demanding conditions are evident within the petrochemicals & chemicals sector whereby, the failure of a single valve can have disastrous implications and significant costs. This characteristic allows for the petrochemicals & chemicals and metals & mining sectors to be very demanding in terms of product quality and service over price. Thus, these two sectors are the driving forces behind the more efficient control valve solution product segment.
- The power industry occupied the third largest portion of total revenues in 2007. This share of revenues is the result of the extensive projects including refurbishment work and the overall demanding process automation environment within the power sector.
- Other end-user sectors are not as demanding in terms of process automation efficiency and control.

South African demand for valves and actuators is expected to increase substantially beyond 2014

Power Generation (Eskom)

- South Africa needs another 40 000MW of new electricity generation capacity by 2025. Construction of 12 476MW thereof already started in 2009. This included the Medupi and Kusile power stations as well as return to service stations and the Ingula power station.
- In 2009 Eskom reported that the approved capacity expansion was R385 billion for the five year period up until March 2013. Further to this, the budget is expected to grow to more than a trillion rand by 2025. Local valve manufacturers in the energy refurbishment, product design and installation will be poised to benefit from Eskom's new –build programme.
- Sector demand is expected to remain high due to new power plant constructions as well as the refurbishment of a few existing power plants. Key products that will be demanded include control valves and multi-turn, quarter turn valves and electric and pneumatic actuators.

Bulk Water Demand

- Much of South Africa's bulk water infrastructure is reaching the end of its life and will require upgrade or replacement; further, since 2006 a disturbing mismatch between water demand and bulk infrastructure development has come to light, with the result that users in the highly strategic Vaal and Umgeni systems are exposed to the risk of water restrictions for the next decade.
- South Africa has extensive wastewater infrastructure, comprising 850 municipal treatment plants that transport and treat an average of 7 589 mega-litres of water daily. However, this infrastructure is in urgent need of maintenance and replacement. Along with inadequate wastewater treatment, there is a lack of wastewater monitoring.
- Over the Medium Term Expenditure Framework (MTEF) budget period, the Trans-Caledon Tunnel Authority (TCTA) will spend just over R20 billion on expanding and maintaining its facilities.

South African demand for valves and actuators is expected to increase substantially beyond 2014 cont...

Gas and Petroleum Pipelines

- The Petroleum Oil and Gas Corporation of South Africa (PetroSA) main activities include the exploration and production of crude oil and natural gas off the southeast coast of South Africa.
- PetroSA is proposing to build a world-class crude refinery in the Coega Industrial Development Zone in the Eastern Cape. Once built, it will provide a national security of supply for South Africa's future fuel requirements. PetroSA hopes Mthombo (refinery) will come on stream by 2014.
- With a capacity of 360 000 barrels a day, Mthombo would be the biggest refinery in Africa. According to the Department of Energy, the projected cost of the mega-project was R110-billion in September 2010 (MG 2011) with significant demand prospects for valve manufacturers.
- Due to a massive capital outlay for the construction of two new refineries, sector demand is forecast to remain high. The key product markets include control valves, pneumatic actuators and quarter turn valves.

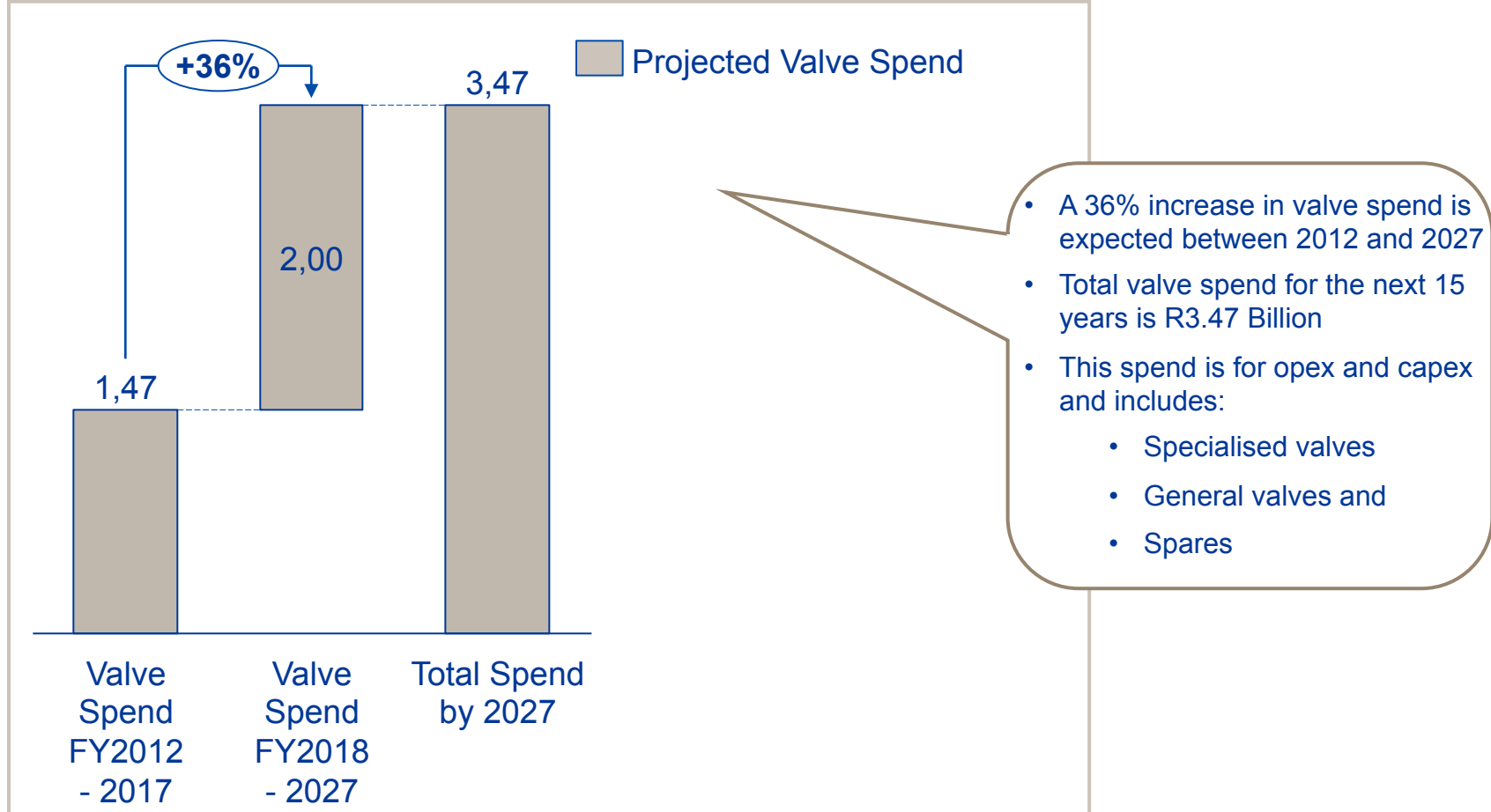
Transnet

- It has been determined that the existing pipeline infrastructure cannot meet the future needs of South Africa beyond 2010. Therefore, Transnet Pipelines proposed the implementation of the New Multi Products Pipeline (NMPP) Project which meant to increase the capacity and flexibility of their existing pipeline network supplying Gauteng.
- The demand for valves is expected to grow following the planned capital expenditure programmes of chemical and petrochemical companies such as Sasol and PetroSA. The upgrading of facilities is also to facilitate the reduction of energy consumption, which will include replacing obsolete valves with automation compatible valve products.
- Transnet has illustrated that R11.5bn is directed at upgrading and capacitating the pipeline network in South Africa, representing valuable demand prospects for manufacturers of valves.

Eskom's valve spend is set to increase by 36% over the next 15 years owing to operational and capital expenditure

Valves and Actuators Spend by Eskom

Rand (Billion)



Eskom's Valve Classification

Specialised Valves: high pressure/high temperature (HP/HT) valves

- Largely used in the high pressure and high temperature application areas such as the boiler and turbine steam sections of the plant at a power station.
- Operate at or above 250°C temperature and design pressure of 4.0MPa. The criticality of the plant where they are used is also a factor. The housing and the valve spares of the HP/HT valves are manufactured in accordance with the original design specifications.
- Designed to have a lifespan of about 20 years.
- The process controls of these HP/HT valves installed in Eskom's power generation plants have been programmed to give the desired process parameters taking into account the valve characteristic curves under different operating conditions.

General Valves

- The general/standard valves are classified as those that do not fall within the specialised valves criteria, usually used in low pressure and low temperature applications.

There are approximately 13,000 – 15,000 (depending on the size of the plant) valves installed in a generation plant and 70%-80% of these are general/standard valves while 20%-30% reflects the HP/HT valves.

Tenders are evaluated on three criteria through a structured process

Suppliers within Project Sourcing are evaluated on three criteria

	Components	Weighting
1 Price / Financial	<ul style="list-style-type: none"> Financial ratios Annual financial statements Turnover Collateral Contract value and period Price 	Variable: ~40%
2 Technical	<ul style="list-style-type: none"> Experience Technology New innovations Product knowledge Client network 	Variable: ~30%
3 Commercial Processes and SD&L	<ul style="list-style-type: none"> B-BBEE rating Local content Job creation Skills development Enterprise development 	10 %: B-BBEE 20%: Local Content & Skills Development

- The Buyer / Commodity Manger ensures that a thorough evaluation process is followed against an evaluation methodology
- Method of evaluation must be agreed upon with **the cross-functional team**
- Confidentiality** of documents cannot be compromised

The following key challenges are experienced by suppliers within the valve sector

1. Lack of access to finance means small suppliers cannot participate meaningfully
2. Lack of skilled labour force hampers the productivity of the sector
3. Eskom procurement practices and contract clauses hamper the growth of small companies (retention, performance bonds, etc)
4. End users are unable to determine future volumes and thus cannot plan adequately
5. Intense competition amongst participants in the “general” valve field
6. Cheap imports that are of high quality stifle the local market
7. End-users have bargaining power, due to this they limit the profit margin
8. Barriers exist to increasing production to multiple shifts for increased output

1. Up to 30% price difference in comparison to the imported products.
2. Poor quality of the valves, do not last long before they need to be replaced.
3. Local industry very reluctant to share information pertaining to their capacity and detailed capability with Eskom.
4. Local industry also reluctant to share information about the exact source of various valve components. (Local vs FGN)
5. Local industry request to have “first offer of refusal” prior to going out to global market (Infringement of PFMA)
6. Specialised valves are fully imported, manufactured to specification by the OEMs.
 - Licensing issues
 - Control system restrictions
 - Limited local value add
7. Local industry not transformed
 - Apparent conflict between key KPI's in SA (BBBEE vs local)

Applicability of Eskom valves with Dti proposed designated valves

Valve Types	Specialised (HP/HT) Functional complexity they perform in specific systems	HP/HT (but not specialised due to system location installed)	General
4. BALL VALVES Sizes: 20mm – 600mm Pressure Rating: PN20 – PN400 Materials of Construction: Carbon Steel, Stainless Steels, Alloy Steel		✓ only valves with pressure rating PN40/250°C and above.	✓
5. BUTTERFLY VALVES Sizes: 80mm – 3500mm Pressure Rating: PN6 – PN250 Materials of Construction: Cast Iron, Ductile Iron, Carbon Steel, Stainless Steels, Alloy Steel			✓
6. CHECK VALVES Sizes: 80mm – 3500mm Pressure Rating: PN6 – PN250 Materials of Construction: Ductile Iron, Carbon Steel, Stainless Steels, Alloy Steels		✓ only valves with pressure rating PN40/250°C and above.	✓
7. CONTROL VALVES Sizes : 25mm – 600mm Pressure Rating PN20 – P400 Materials of Construction: Cast Iron, Ductile Iron, Carbon Steel, Stainless Steels, Alloy Steel	✓ Size above 50mm only valves with pressure rating PN40/250°C and above.		
8. DIAPHRAGM VALVES Sizes: 15mm – 350mm Pressure Rating: PN10 & PN16 Materials of Construction: Ductile Iron			✓
11. GATE VALVES Sizes : 15mm – 1800mm Pressure Rating: PN6 – PN160 Materials of Construction: Ductile Iron, Cast Steel	✓ Size above 50mm only valves with pressure rating PN40/250°C and above.		✓
19. SAFETY RELIEF VALVES Sizes : 15mm – 32mm Pressure Rating: PN16 Materials of Construction: Brass, Bronze	✓ Size above 50mm only valves with pressure rating PN40/250°C and above.		