Product News

Gas-insulated switchgear – it's more than just a cost consideration

Johannesburg – April 25, 2015 – Selecting whether gas-insulated switchgear (GIS) is right for a particular business boils down to asking the right questions in order to make a good comparison.

According to Schneider Electric, a global specialist in energy management, the initial cost of a primary switchgear offering, be it a gas-insulated (fixed pattern switchgear) or air-insulated (withdrawable pattern metal-clad solution), should not be the only consideration. Other factors to take into account are reliability of the switchgear, operation costs, the safety of workers, the risk of an outage and decommissioning costs.

"Only by looking at the complete business picture and mainly the total cost of ownership (TCO) can a company decide which electrical medium-voltage (MV) switchgear best suits its need," says Brighton Mwarehwa, technical manager for MV primary switchgear at Schneider Electric South Africa

The company maintains that from a management perspective, considerations include the purchase price, the life expectancy of the switchgear, the size of the equipment, the amount of time to install and commission the switchgear, worker

safety, outage risk, maintenance, and reliability. From an operational standpoint, training time, accessibility of the equipment, operating costs, decommissioning costs, and support must all be factored.

“Schneider Electric South Africa is often asked about the cost of a primary gas-insulated switchgear (GIS) solution in comparison to other MV solutions. When considering costs though, it is important that the customer look at expenses over the lifespan of the equipment rather than upfront costs,” says Mwarehwa.

The company’s GIS offering suits a wide range of requirements and applications in public and industrial distribution networks, renewable energy projects infrastructure projects, mining, metallurgy, petrochemical, oil and gas industries, railways’ traction power supply, container stations and ship-building.

“As an efficient, smart and safe product line, our GIS solutions receive special interest as they are made from almost 100 percent recyclable material and some of the high performance panel designs take up to 25 percent less space than the average GIS product. Its ergonomically designed control panel also draws much attention for its simplicity and ease of use, something that is invaluable in an emergency situation. Cost alone should not remain an ultimate decision-making factor,” he says.

The initial purchase price of metal-clad switchgear ranges between 10 to 40 percent less than GIS. However, over the lifespan of the switchgear, GIS will cost much less to maintain and operate making the total cost of ownership of metal-

clad, air- and gas-insulated very close, and in some cases much better for GIS switchgear.

A TCO analysis assessment ideally offers a final statement reflecting not only the cost of purchase, CAPEX (capital expenditure is the cost of developing or providing non-consumable parts for the product or system), but also all aspects in the further use and maintenance of the equipment considered, OPEX (operating expenditure is an on-going cost for running a product, business or system).

Considering a typical 36 kV wind farm collector grid located in a remote area requiring an electrical house (e-house), and assuming 2500 A busbar current, a typical assessment of this business case will result in the following estimate costing for the end user:

	Cost	Typical metalclad USD (1,000)	GIS USD (1,000)
CAPEX ITEMS	Purchasing	665	779
	Transportation	26	19
	Civil engineering	508	160
	Installation & commissioning	42	18
	Training	10	15
OPEX ITEMS	Maintenance	235	13
	Operating	34	8

	Decommissioning	23	25

Expenditure estimations based on CAPEX/ OPEX

Deciding on a switchgear solution should thus be based on TCO and business benefits. Mwarehwa highlights that a GIS solution offers huge business benefits when in comes to modularity. “Not only is our GIS offering also both innovative and safe, it is not sensitive to the environment, virtually maintenance free on all the MV parts, and very easy to install and operate. In particular we have GIS types, which do not require gas handling during the lifecycle of the switchgear, that is no gas handling onsite during erection, extension or disposal. In addition, our GIS offering complies with the stringent requirements of IEC standards; subsequently, taking all elements into consideration, the GIS switchboard *is* a profitable investment for the future of an operation.”

About Schneider Electric

As a global specialist in energy management with operations in more than 100 countries, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in Utilities & Infrastructure, Industries & Machines Manufacturers, Non-residential Building, renewables, Data Centres & Networks and in Residential. Focused on making energy safe, reliable, efficient, productive and green, the Group's 150,000 plus employees achieved sales of 24 billion euros in 2013, through an active commitment to help individuals and organisations make the most of their energy.

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