



Cutting GIS switchgear down to size

A new version of ABB's high-voltage gas insulated switchgear (GIS) is more than 40 percent smaller than its predecessor, making it the smallest GIS in the world for voltages up to 300 kV.

For customers grappling with limited space (indoor and underground switching systems) and high land values (substations in urban areas), GIS is the right solution.

The challenge of size

Key to ABB's breakthrough with the new GIS is the successful combination of three space-consuming components – two disconnectors and one earthing switch – in a single, unique compact device.

ABB already uses this single-device technology for lower voltage switchgear. The challenge was to transfer it to much higher voltage 300 kV devices without making them bigger (the higher the voltage, the greater the isolating gaps between the components and, accordingly, the bigger the device).

This entailed designing a number of new space-reducing features and technologies, including a single multifunctional drive for both the disconnector and the earthing switch, which had previously required three drives.

Smaller switchgear, lower costs

The result is a substation layout – patented by ABB – that reduces the required space for a standard substation by 43 percent, while maintaining the same voltage ratings, functionality and proven field performance of ABB's existing GIS type.

With ABB's GIS technology, components are also located within an SF6 gas-filled enclosure. Due to the excellent electrical insulation properties of SF6, they can be placed much closer together, which reduces the amount of space needed for the switchgear.

The smaller space needed for the substation significantly lowers investment outlay and operating costs. Less space is used, building costs are lower, and the single device and single drive mean less maintenance and fewer spare parts.

The environment also benefits. Fewer components require less material and have a lower environmental impact.

To coincide with the launch of the new GIS, ABB has developed a single-platform for 145 kV breaker chambers covering all applications, from gas insulated switchgear to live and dead tank breakers.

By centralizing the manufacture of a key component at a single facility, ABB is able to pass on the benefits of market leadership to customers. High volume production at a focused factory for this component enhances product quality and reduces manufacturing costs.