

High-voltage products



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Dear Reader,

ABB's high-voltage (HV) products heritage dates back more than a century to the inception of the grid. ASEA, an ABB parent company, delivered one of the world's first HV circuit breakers in 1893, which supported the construction of ABB's and the world's first commercial three-phase AC power transmission link, bringing hydropower to a large iron-ore mine in Sweden. Among the many technology milestones over the years ABB also pioneered the development of gas-insulated switchgear (GIS) in 1965.

Today ABB is a global leader in HV products with a manufacturing footprint comprising more than 40 production centers around the world and a sales and service network spanning over 100 countries. In line with ABB's local approach we are constantly calibrating our manufacturing footprint to be close to our customers and to meet their local needs more efficiently. For instance, ABB recently announced new production facilities in India and Saudi Arabia.

When it comes to technology and innovation ABB remains committed to collaborating with its customers and addressing their needs, challenges and opportunities. ABB's innovations and product launches bear testimony to this commitment. For example, ABB has significantly reduced the footprint of its latest generation of GIS products, the most recent being the 72.5, 245 and 420 kV. And the company developed 1,100 kV and 1,200 kV products to address emerging market needs for bulk power transmission over long distances at ultrahigh-voltage levels to minimize losses.

ABB's latest range of generator circuit breakers (GCBs) is taking power plant availability and reliability to higher levels. The recently introduced 72.5 kV PASS (Plug and Switch System) hybrid switchgear solution for wind applications is an example of the company's renewables focus from a high-

voltage products perspective. ABB also continues to facilitate a smarter grid through plug-and-play, remote access and sensor-enabled solutions such as the FOCS (fiber optic current sensor). When it comes to monitoring and control, Switchsync – a microprocessor-based controller for circuit breakers deployed for transient reduction and improved power quality – and the Circuit Breaker Sentinel™ for condition monitoring of SF₆ circuit breakers are two of ABB's latest offerings. Eco-efficiency remains a major thrust of the company's R&D efforts to address the environmental challenge. The considerably reduced footprint of the latest generation of ABB products minimizes SF₆ gas requirements. Not long ago ABB announced a breakthrough in SF₆ gas recycling. The recently launched 72.5 kV CO₂ circuit breaker is the first in a new series of eco-efficient live tank breakers, which substitutes SF₆ gas with more environmentally friendly alternatives – a quest ABB plans to continue.

High-voltage products play an integral part of several emerging power trends, such as compact and intelligent substations, HVDC and UHVDC transmission links, integration of renewable energies and the evolution of stronger, smarter and more flexible grids.

We hope this special edition of *ABB Review* sheds light onto the world of electric power from a high-voltage product perspective. And as we address the challenge of providing safe, reliable and adequate electricity for all, we must remain mindful of our environmental responsibility – as the old proverb states, "We do not inherit the earth from our ancestors; we borrow it from our children."

Happy reading!

Bernhard Jucker

Giandomenico Rivetti

