# Innovation

Prith Banerjee

**Dear Reader,**

Innovations are the changes that propel technical progress forward. They can broadly be classed into three categories: Derivative innovations build on and improve current products, for example by extending existing product families. Platform innovations lead to new products and families of products. The third type, disruptive innovations, are the boldest. They break new ground in a big way, significantly expanding the envelope of the possible and reshaping the way things can be done, so redefining applications, the market and ultimately economic and societal realities.

ABB has recently announced a truly disruptive innovation that will revolutionize the transmission grid on a scale that has maybe not been seen in a century.

Whereas traditional power plants were typically located close to centers of consumption, emerging renewable generation often requires transmission from remote areas. The greatest abundance of renewable sources is in sparsely populated regions where traditional grid infrastructure is weak. Its increased harnessing is thus redefining the requirements placed on transmission grids, with more power having to be transmitted over longer distances – without interfering with local flows. ABB's solution to this challenge is high-voltage DC (HVDC).

ABB's predecessor company, ASEA, pioneered HVDC in the 1950s. Today the technology permits highly efficient bulk transmission over thousands of kilometers as well as the crossing of seas. As early as 1992, ABB proposed a European power supergrid, consisting of an HVDC network connecting centers of consumption to hydro, solar and wind plants, some of them thousands of kilometers away. But the lack of a suitable DC breaker meant that all HVDC links built so far are point-to-point transmissions. ABB has now cleared the final major technical hurdle on the road to a true DC grid with the presentation of its DC breaker.

There is much to be said about the DC breaker, and besides the introduction in this issue, the topic will be revisited in upcoming editions of *ABB Review*.

Further topics covered in the present issue range from data centers to smarter switchgear, and from wireless communications to the better understanding of operator interfaces. All of these innovations will make utilities and industries more efficient, safer and more productive.

I trust that these and other topics presented in this edition of *ABB Review* will increase your understanding of ABB technology and that you will find aspects that are relevant to you.

Enjoy your reading.

Prith Banerjee
Chief Technology Officer and
Executive Vice President
ABB Group