Fiber-optic current sensors (FOCS) have reached a high degree of maturity and are about to enter into applications in high voltage substations. The sensors offer a number of important advantages over conventional inductive current transformers (CT) such as high fidelity (large bandwidth, no performance loss due to magnetic saturation), higher safety of operation, drastically reduced size and weight, and digital communication. Whereas conventional CT are commonly installed as stand-alone devices optical sensors can be easily combined with other high voltage equipment. The new, so-called disconnecting circuitbreaker (DCB) with FOCS, unites the functions of current switching, disconnecting, and current measurement in a single device and results in a footprint reduction of over 50%.

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compared to a conventional solution. Such space savings are especially important near big cities. Sensors are preinstalled in the factory which minimizes any on-site installation work. In combination with a digital substation, the new technology is needed for each switchgear. In this film, ABB shows connecting FOCS with HV DCB in substation.