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Germany

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CompactLine: Enhanced capacity... reduced visibility





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Together with 50Hertz, the third largest electric energy transport system operator in Germany, SPIE has developed a completely new design for high voltage overhead lines: the compactLine. In a nutshell, the compactLine is a new system that upgrades existing tracks to achieve a higher transmission capacity and, due to clever designing, reduced visibility.

The idea behind the compactLine is brilliant in its simplicity: by introducing mechanically highly tensioned steel ropes (like used in cable cars or bridges) into the bundle configuration of the conductors, the sag of the bundle is "flattened". New conductors with higher capacity can consequently be hung in this "bundle", reducing the height of the towers and the right-of-way of the track, while nearly doubling the power line's transmission capacity.

The challenge consisted of finding a way to increase the capacity of existing 220 kV lines to 380 kV without taking up more space or using larger towers. That's precisely what the engineers behind the compactLine have achieved. What's more, the height of the towers is actually reduced by their innovative design.

Instead of starting from scratch, the compactLine's engineers chose to use existing 220 kV lines in the conception of the new overhead line - a solution that is both environmentally friendly and energy-efficient.

The compactLine therefore fills two needs with one deed. On the one hand the compactLine offers a possible way of meeting the future demand for transport of sustainable energy; by almost doubling the power transmission capacity in the track of a standard power line of 220 kV to 380 kV. Secondly it gives another option for new lines with its pioneering design applying aesthetic minimalism for reduced visibility. This could make it easier for utilities to find public acceptance for new tracks and obtain permits for higher capacity overhead lines.

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contact

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