

Siemens' innovative switching principle paves way for sustainable F-gas-free power distribution

- **Load-break switch with vacuum interrupter in secondary current path**
- **Economical alternative to circuit breakers**
- **Safety through switching using a consistent operating concept**

Siemens Smart infrastructure is continually expanding its portfolio for climate-neutral power distribution. In the medium-voltage switchgear of the blue portfolio, the company has completely eliminated fluorine-based gas mixtures (F-gases) while retaining the compact design and safe, proven operation. An innovative load-break switch equipped with a special vacuum interrupter is the new centerpiece for F-gas-free medium-voltage applications in secondary distribution grids from 12 to 24 kV.

All switching operations, such as turning off medium-voltage systems for maintenance, produce arcs that must be quenched as quickly as possible. In its F-gas-free medium-voltage systems, Siemens relies on millionfold proven vacuum technology where the arc is quenched in a sealed vacuum interrupter. This core technology has been used in premium vacuum circuit breakers for 40 years. For systems of the secondary distribution grid level that distribute power in the local grid and mostly only handle load switching tasks, the conventional circuit breakers in use are typically oversized and cost-intensive.

In the new and innovative load-break switches, the vacuum interrupters have the task to quench the arc within a few milliseconds. For this purpose, they are integrated into a separate current path and can be kept extremely compact. Furthermore, a new load-break switch has been developed which is a true three-position switch. The proven principal of the switch-off, disconnect and earthing

functions used in SF₆ load-break switchgear is continued. As a result, the safe user operation remains unchanged for the Siemens F-gas-free systems.

This new and innovative load-break switch with a vacuum tube is also available in combinations matching it with fuses, using F-gas-free technology. This allows the many transformers in secondary distribution grids to be protected with fuses as usual.

“Because the operation and compact design of the new blue switchgear remains the same, we’re making the switch to climate-neutral power distribution easy and safe for our customers,” said Stephan May, CEO of the Distribution Systems Business Unit at Siemens Smart Infrastructure. “The load-break switch allows us to boost switching performance. This significantly increases the electrical service life and paves the way for the connection of larger transformers, with which the increasing energy demand on the consumer side can be covered in the future.”

This press release and press pictures are available at

<https://sie.ag/3iV35Pj>

For further information on Siemens Smart Infrastructure, please see

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For further information on Siemens blue GIS, please see

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