

Paris Session 2022



The power source of choice for DC CB testing: high-voltage, high-power rectifier

A3 – PS1: Miscellaneous T&D equipment and systems

Q2: HVDC switching equipment is on the way to become 'standardized' technology, while discussions are continuing based on the experiences in the field or laboratories as presented in 10545 and 10773. Can experts provide relevant issues or proposals for the standardization of HVDC switchgear?

Wolfgang GRIESHABER - FRANCE

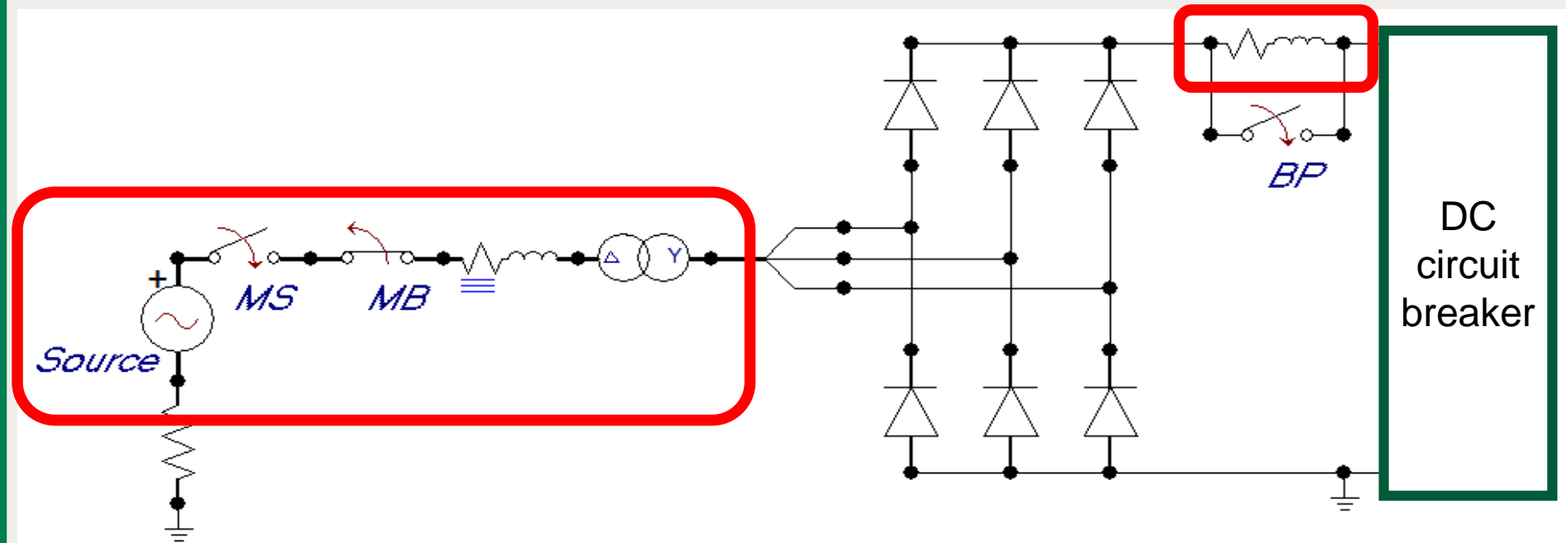


Power sources for DC CB testing

Past HV DC circuit breaker projects

Own test circuit & procedure:

- a) Circuits with pre-charged capacitors,
- b) Charged inductors,
- c) Low frequency generators,
- d) three-phase rectifier circuit (multiple CO).

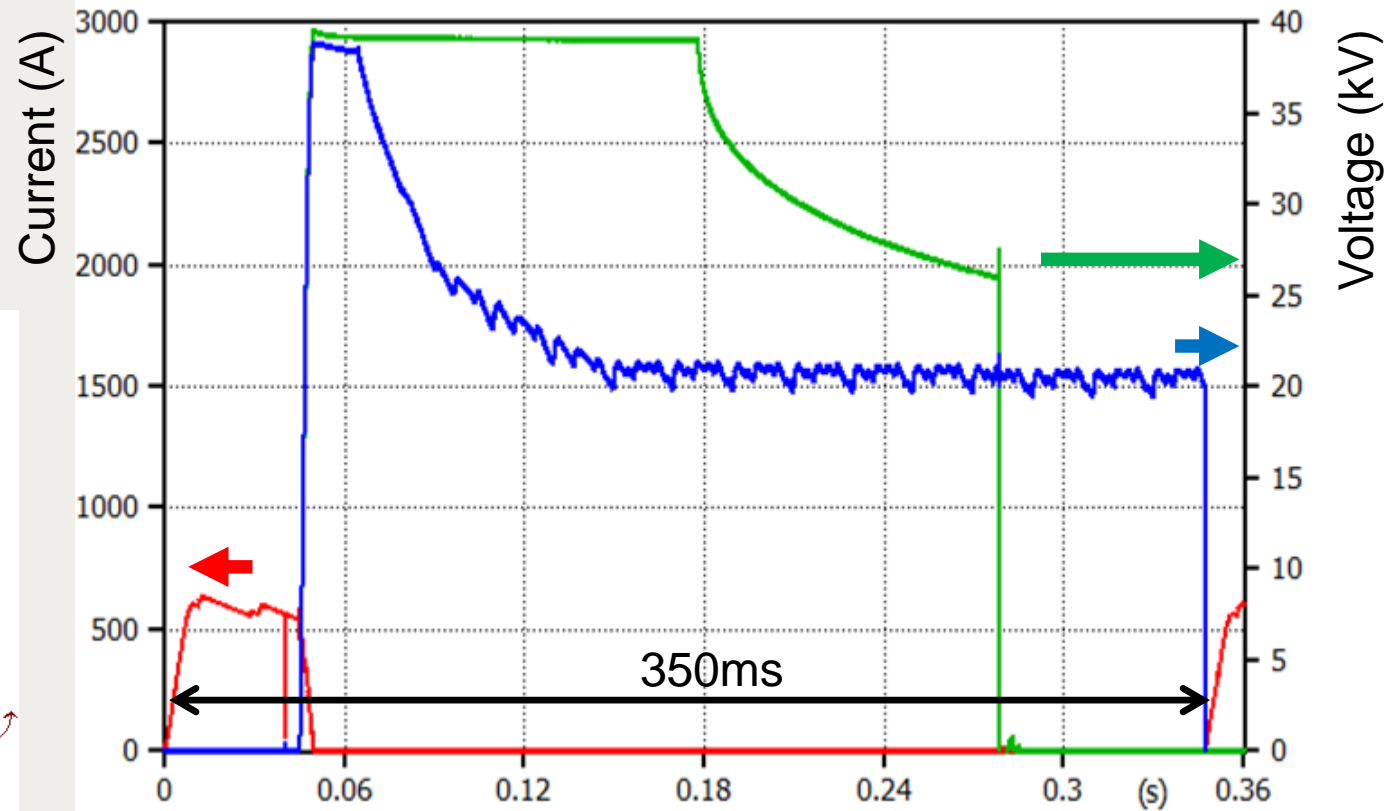
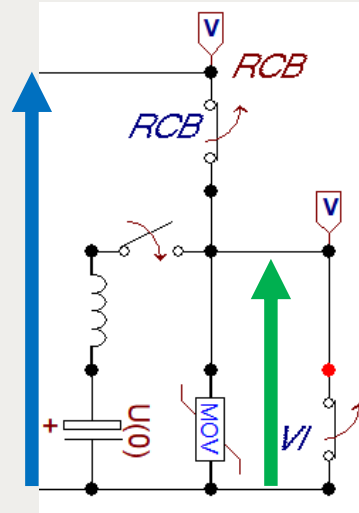


- **Adjustable** to HVDC network behavior
- Source-DCCB interaction is most accurately represented (pk TIV, duration)
- Seamless transition from TIV to the DC recovery voltage
- O-CO: reclosing can occur at any time (no generator phase angle to match)

Group Discussion Meeting

HV high power rectifier commissioning test (O-CO)

- Smooth transition from TIV to DC recovery
- Repetition after 350 ms unmatched by $T_{AC\ gen}$



Conclusions

HV high-power rectifiers is the best way to test DC circuit breaker modules up to **170 kV / 40 kA / 55 MJ** per interruption.