Control algorithm for Hybrid HVDC substation: STATCOM-based Solution

Control algorithm for Hybrid HVDC Transmission Systems for Offshore Wind Farms. Centralized solution based on STATCOM.

Solution

Opportunity: Hybrid HVDC based on diode rectifier offshore substations with respect to Conventional HVDC VSC solution, is able to address the following challenges:

- ✓ Reduction of substation volume and weight
- ✓ Increment of efficiency and robustness

Challenges: To operate Hybrid HVDC Transmission Systems:

- ✓ Stable amplitude and frequency of the AC collector voltage is required
- ✓ Black start must be provided by an additional storage system

STATCOM-based or Decentralized wind turbine-based hybrid transmission system

Advantages of STATCOM-based solution:

- ✓ Standard wind turbine control not modified. Applicable to any wind turbine.
- ✓ Black-start operation through storage system to the DC bus of the STATCOM

Our offer

IP transfer of the innovation:

- Patent P201731257
- Current development phase: TRL

What we are looking for

- Market contrast, feedback

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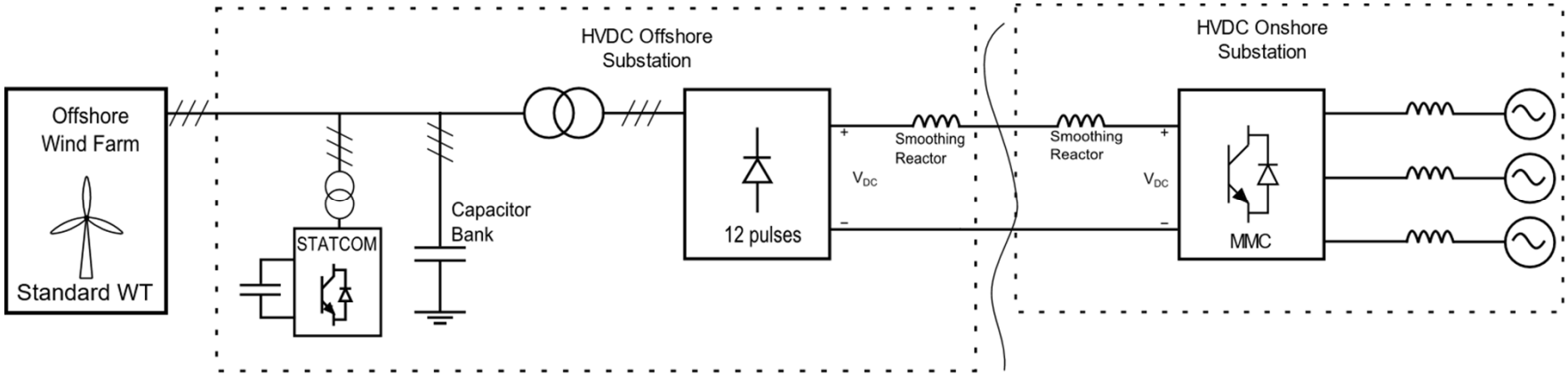
Transmission system scheme



HVDC offshore substation components

- Transformer
- Capacitor bank (Rating <20% p.u.)
- Twelve-pulse rectifier
- STATCOM (Rating <20% p.u.)

HVDC onshore substation components

- MMC inverter

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