

Title: Flexible DC Transmission Inverter

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What are flexible alternating current transmission systems (FACTS)?

Abstract: Flexible Alternating Current Transmission Systems (FACTS) have achieved to enhance the flexibility of modern AC power systems, by providing fast, reliable and controllable solutions to steer the power flows and voltages in the network.

Is there a Flexible DC-link voltage control scheme for grid-forming converters?

This paper proposes a flexible dc-link voltage control scheme for grid-forming converters. In the approach, instead of cascading the dc-link voltage control with

When a converter control is switched to constant DC current control?

At $t = 11s$ when the converter control is switched to constant DC current control, the system gradually converges and eventually operates stably. Therefore, Case 1 demonstrates the feasibility and effectiveness of the flexible control switching method when the equivalent impedance of AC system changes.

What is the control strategy of a DC transmission system?

Fig. 1. Traditional control strategy of DC power. The rectifier of a DC transmission system generally adopts constant power control (or constant-current control). The rectifier station controls the DC current to the reference value using the firing angle. The tap changer ensures the firing angle within the range of normal operation (12.5-17.5°).

Can dynamic voltage control be used in a DC transmission system?

Ref. employed the aforementioned control method on the inverter side of a long-distance high-voltage DC (HVDC) transmission system. Recently, in DC transmission systems, such as Lugu and Zhaoyi, a dynamic voltage control method has been adopted at their inverter stations with an increased voltage dead zone.

How does the LCC inverter station work?

The LCC inverter station adopts constant DC voltage control, equipped with a Voltage Dependent Current Order Limiter (VDCOL). The main parameters of the LCC-HVDC system are shown in Table 1, and the main control parameters are shown in Table 2.

The flexible DC converter valve is the central component of the DC transmission system, utilizing key core power devices such as IGBT, thyristor, ...

Different HVDC architectures by using centralised voltage source converter (VSC), diode rectifier (DR),

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Synchronization between the inverter and the grid needs to be achieved by a phase-locked loop (PLL), the performance of which determines the quality of power ...

In a flexible DC distribution system, high frequency oscillation is easily caused by load disturbance, grid side filter parameter perturbation, distribution line length variation and ...

The pilot directional protection based on amplitude comparison of the traveling wave (TW) has good performance in flexible DC transmission systems. Ho...

High Voltage Direct Current Transmission based on modular multilevel converter (MMC-HVDC) may have a wide frequency range of oscillation risks. In order to reproduce the ...

Flexible DC transmission systems experience negative damping characteristics in the high-frequency range due to the delay in the system ...

Based on this, this paper establishes a simulation model of the multi-terminal flexible DC transmission system containing wind power and photovoltaic power, which provides a ...

In addition, the AC-DC converter has a more flexible control strategy. Due to the applications of bipolar and monopolar DC transmission systems, it is necessary to consider ...

Under the goal of "double carbon", the power system is facing the challenge of ensuring supply and security. The new direction of power system development is to promote ...

China is the first to propose the IGCT flexible DC technology route in the world. With low-frequency and large-capacity, IGCT devices are naturally suitable for application scenarios of ...

2.1 Traditional HVDC system DC transmission is a type of power transmission that change the three-phase AC current to the DC current through the converter station, and then ...

With the fast development of converters (rectifiers and inverters) at higher voltages and larger currents, DC transmission has become a major factor in the planning of the power ...

In order to meet the current needs of power transmission, people have turned their attention to direct current (DC) transmission. When the ...

Flexible DC (Direct-Current) transmission networks can effectively isolate AC and the DC networks, and have good development prospects. The key component of flexible DC power ...

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