Ultra-high voltage transmission inverter

What are extra high voltage and ultra high voltage transmission systems?
Extra High Voltage (EHV) and Ultra High Voltage (UHV) transmission systems are essential components of modern power infrastructure. They allow safe,efficient,and reliable delivery of electricity over long distances,which is critical as the demand for energy continues to grow.

Why is ultra-high voltage direct current (UHVDC) used in long-distance transmission lines?
The ultra-high voltage direct current (UHVDC) system is widely applied in long-distance transmission lines because of its advantages of large capacity,low power loss,and good economy[1 - 4]. Generally,since the power generation of an energy base is very large,it is necessary to transmit the power to multiple load centre .

What is ultra-high-voltage (UHV) technology?
The Ultra-High-Voltage (UHV) technology is an advancement of HVDC,transmitting large amounts of power with minimum losses and integrating renewables often located at a great distance from centers of demand.

How much power is transmitted by a UHV AC line?
The normal power transmitted by a UHV AC line usually ranges from 3000 to 5000 MW. Using 1000 kV as the nominal voltage can meet the need for long-distance,high-capacity transmission and power exchange; whereas using 1150 kV can increase the maximum power transmitted by the line,but it also increases the cost (15-20% higher than 1000 kV).

What is the rated UHV DC voltage?
Based on these,±800 kVis proposed as the rated UHV DC voltage,with a transmission capacity of 6400-8000 MW. The voltage and transmission capacity could form a reasonable differential and create comprehensive technical and economic advantages.

Why is high-voltage direct current (HVDC) transmission important?
High-voltage direct current (HVDC) transmission systems are becoming more and more important in the global energy landscape which is characterized by increased digitalization,accelerated decarbonizationand the unprecedented uptake of distributed energy resources (DER),inverter based resources (IBR) and distributed power generation in general.

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