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A Maxmium Current Control Strategy for Three-phase PWM Rectifier for the ITER In-Vessel Vertical Stability Coil Power Supply

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The required peak current of ITER in-vessel vertical stability (VS) coil power supply is up to 80 kA, so VS coil power supply needs a PWM rectifier to achieve high power factor operation under the highly transient power demand. A new maximum current control method for three-phase PWM rectifier based on its mathematical model in d-q coordinate has been discussed. The control method samples DC-voltage of power supply and changes the set-value of current-loop controller instantaneously at different voltage values, it meets the fast-charge demand of power supply and achieves a unity or high power factor operation. The feasibility of the control method has been verified by simulation and experiment.

Eligible for student paper award?

Yes

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