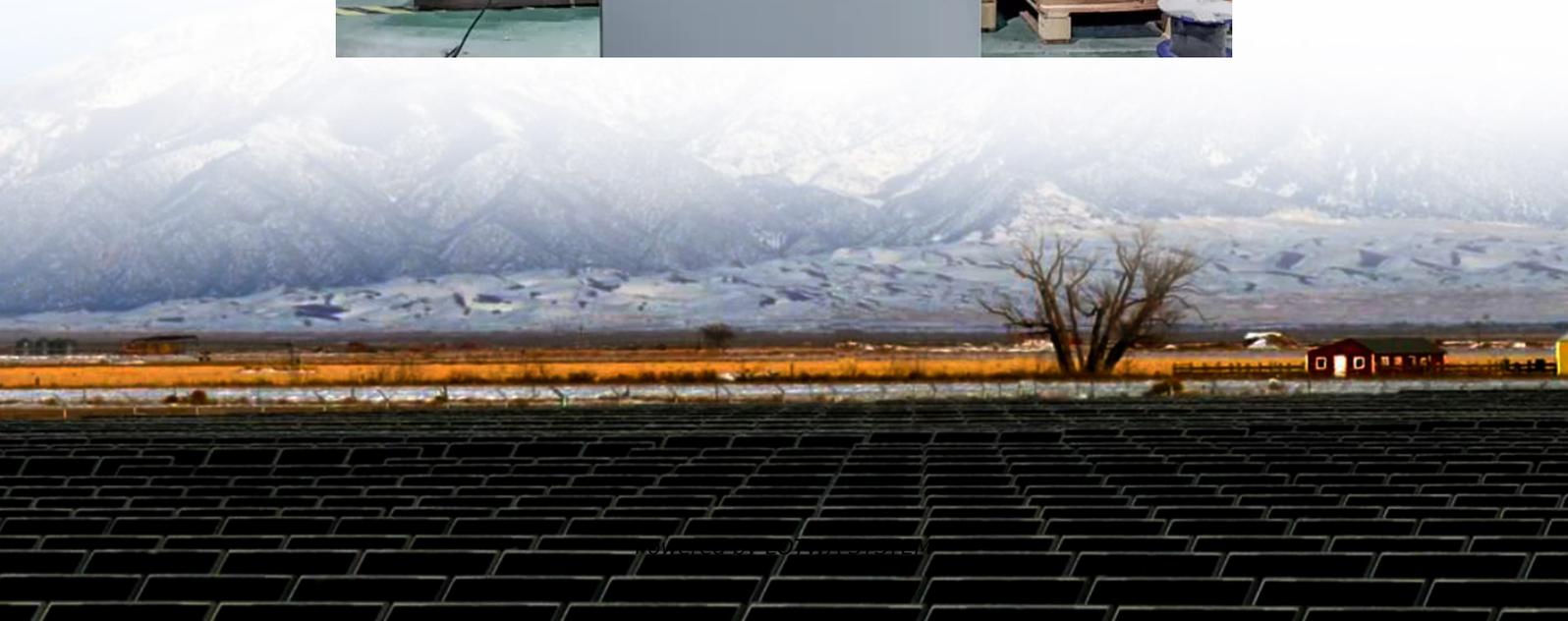


Solar inverter circulating current





Overview

How circulating current flows between inverters?

The circulating current flows between inverters due to DC-offset voltage and fluctuation of AC output voltages. This strategy uses the fundamental voltage and phase droop scheme to allow the inverters to share their load currents and uses a DC-offset droop scheme in order to eliminate DC circulating current.

Why do modular inverters have a closed circuit?

Modular inverters have a closed circuit when each inverter shares the common DC source and AC bus. The circulating current is generated by differences in each inverter, such as hardware parameters and control process. The circulating current deteriorates the output current quality and degrades the reliability of the parallel system [12–15].

What is the circulating current of a parallel inverter?

The circulating current reached rms value of $I_{AC,CM} = 92$ A during the parallel operation of the inverters. The AC and DC side currents were almost identical as they should be in the circuit. The current follows the common-mode voltage u_{NP-NP} as can be seen in Figure 31.

How do inverters work?

As can be seen in Figure 29, the circulating current is almost identical on the AC and DC sides of the inverters. After 3 seconds, the circuit breakers open the circuit due to the excess current and the circulating current drops. The inverters continue to modulate thus keeping the common-mode voltage up in the system.



Solar inverter circulating current

Circulating currents in parallel-connected central ...

Jan 31, 2021 · The inverters used in this thesis are large modular 1500 V 5 MW central inverters both having four identical power sections. These inverters are connected to the same MV ...

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Elimination of circulating current in parallel operation of ...

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Nov 14, 2013 · on that the circulating current can also be obtained by a common-mode voltage measurement. A control method based on a short-time switching frequency transition is ...

A Control Scheme to Suppress Circulating Currents in ...

Nov 13, 2022 · The parallel operation of inverters has many benefits, such as modularity and redundancy. However, the parallel connection of inverters produces circulating currents that ...

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