Oscillator of solar inverter

Overview

How do inverters synchronize virtual oscillators?

The intrinsic electrical cou-pling between inverters is leveraged to synchronize virtual oscil-lators, hence realizing a control strategy that promotes dynamic load sharing with minimal frequency/voltage deviations.

How are inverters programmed to emulate a nonlinear OS-cillator?

The output of each inverter is programmed to emulate the dynamics of a nonlinear os-cillator. The virtual oscillators within each controller are implicitly coupled through the physical electrical network.

What is a virtual oscillator?

underlying electrical network, the virtual oscillators (we use the terminology virtual to emphasize that the oscillator dynam- ics are emulated on a digital controller) synchronize without any supervisory control effort or information exchanges over a communication network; in other words, a stable power system emerges innately by design.

Which virtual oscillator controller is used in all three inverters?

The virtual-oscillator controller that has been depicted in Fig. 3 is employed in all three inverters. For the PV-interfaced inverter, MPPT is implemented following the approach described in Section IV-B. The parameters of the con-troller and the PV array are summarized in Appendix B.

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