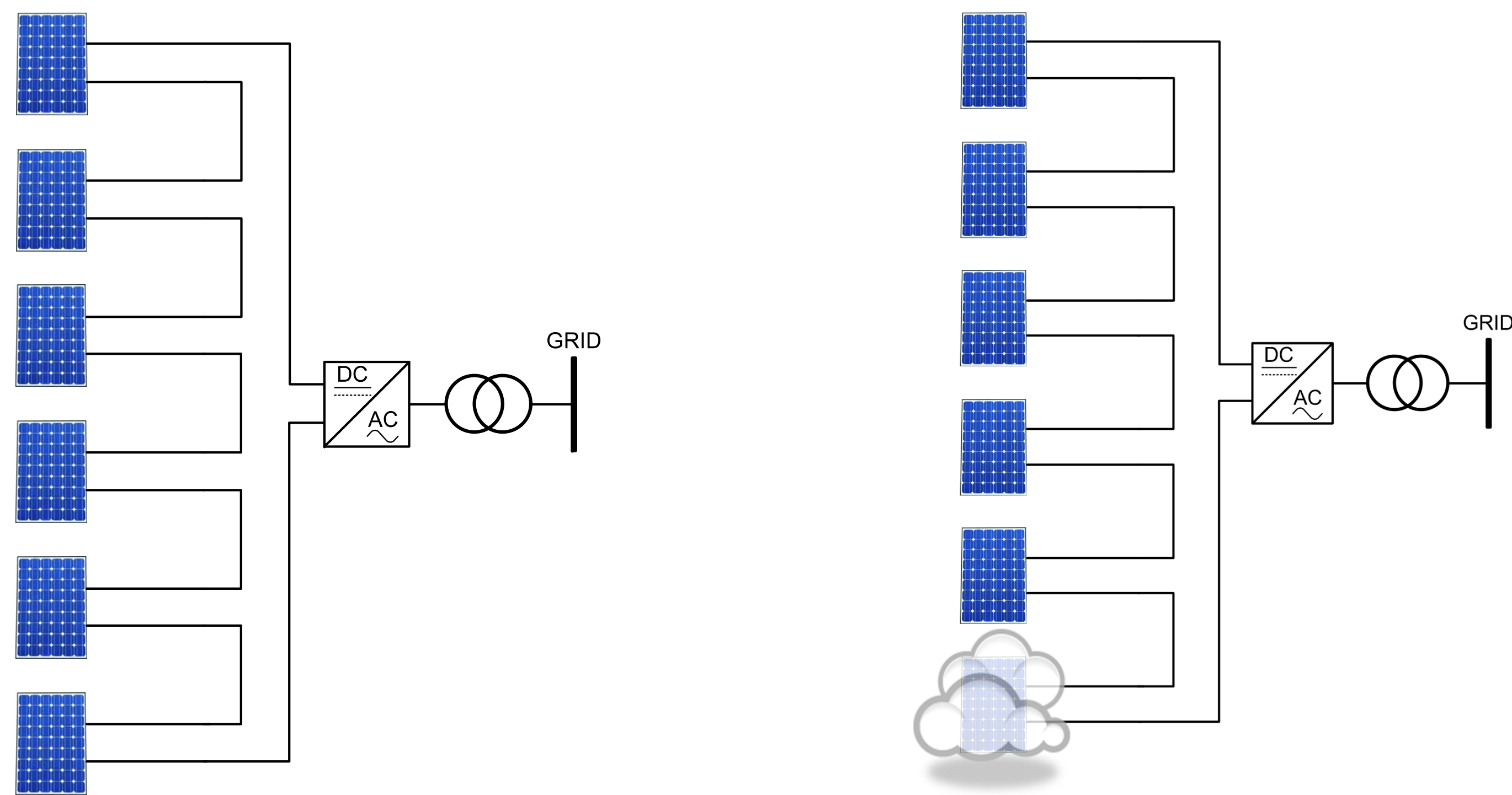
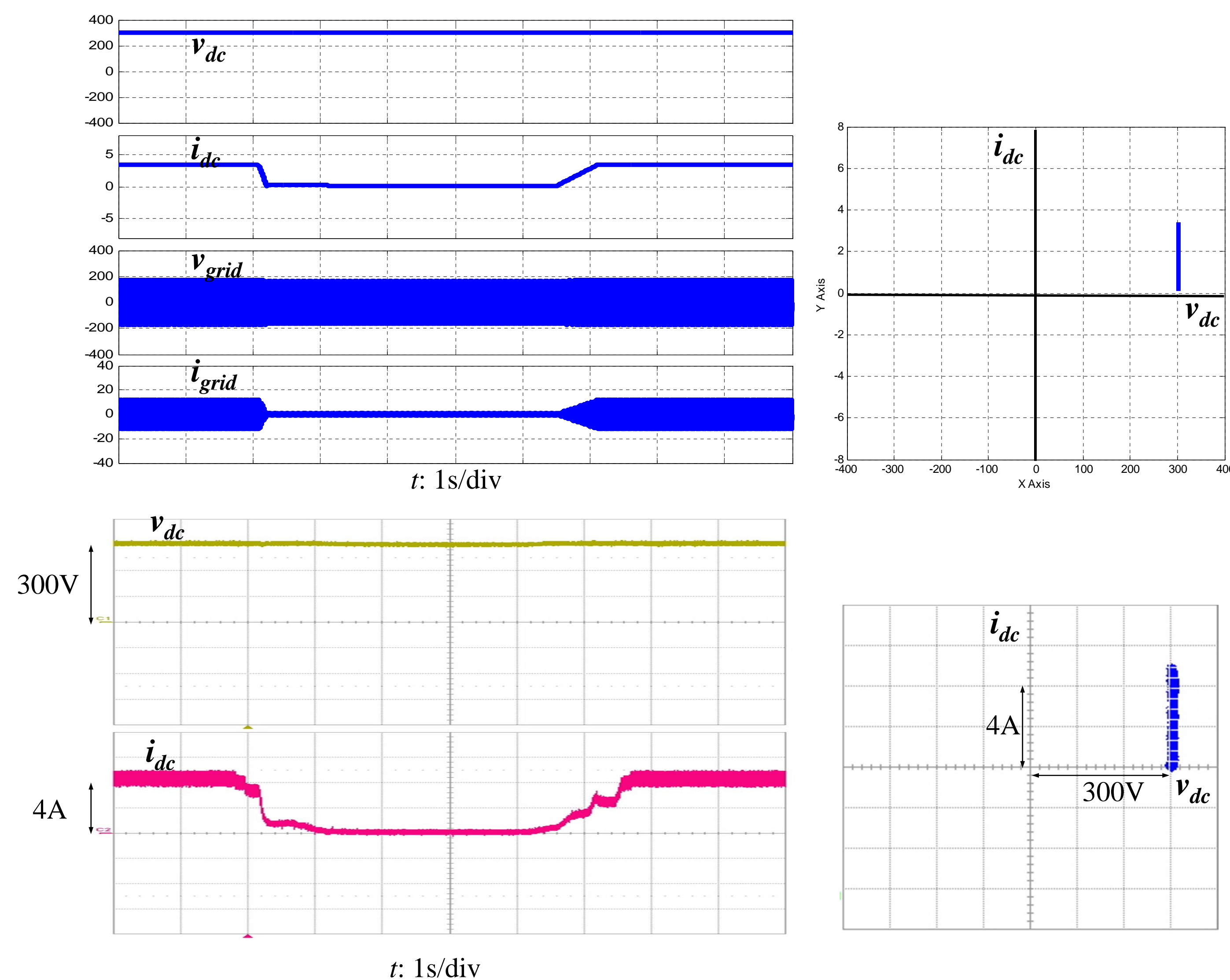


1. System Configuration without SolarMagic™



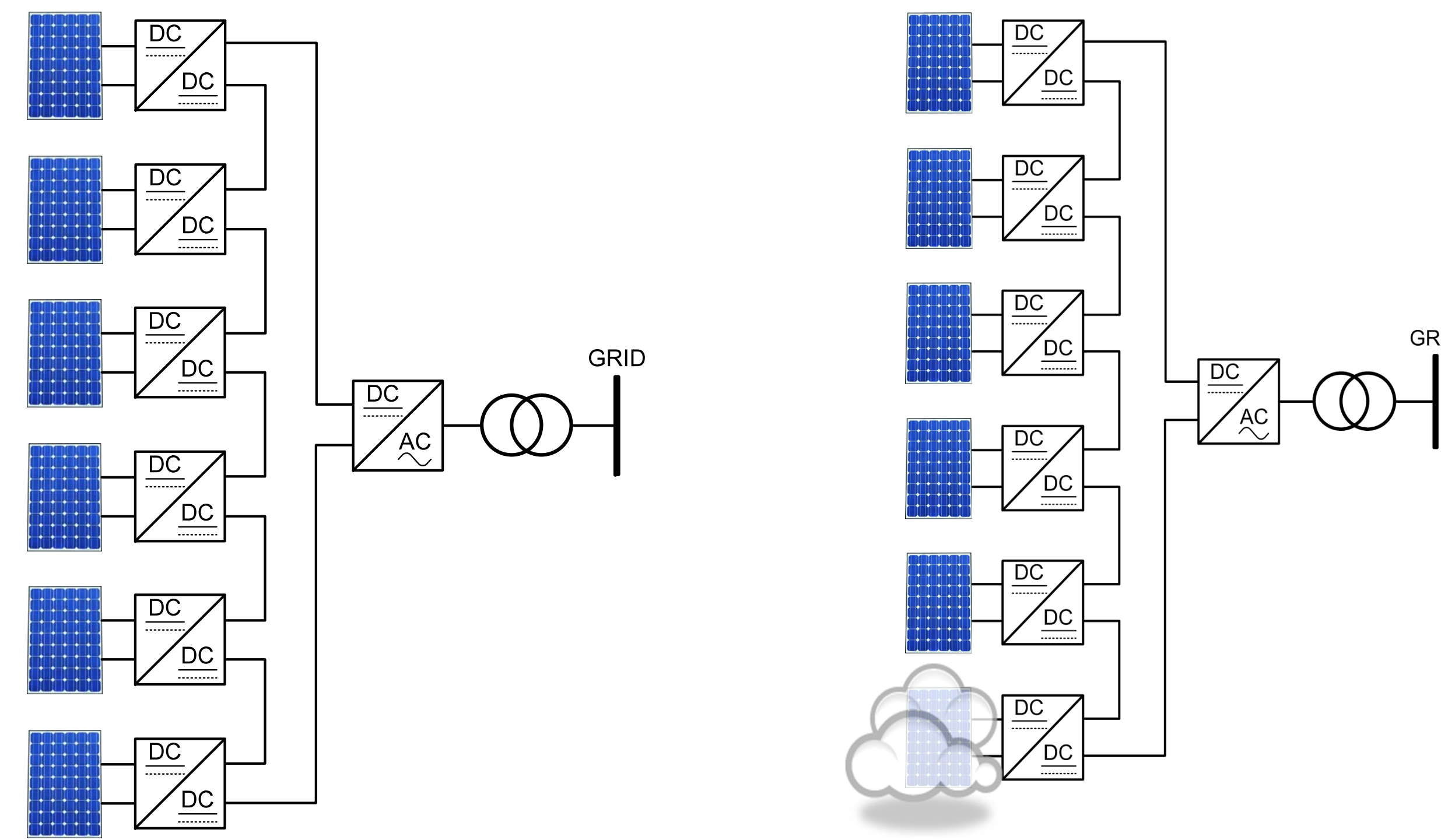
- All PV panels share the same current
- Output power is limited by the smallest current, typically the shaded panel(s)
- Output power tends to drop dramatically during the shaded condition

Simulation and Test Results of Shading



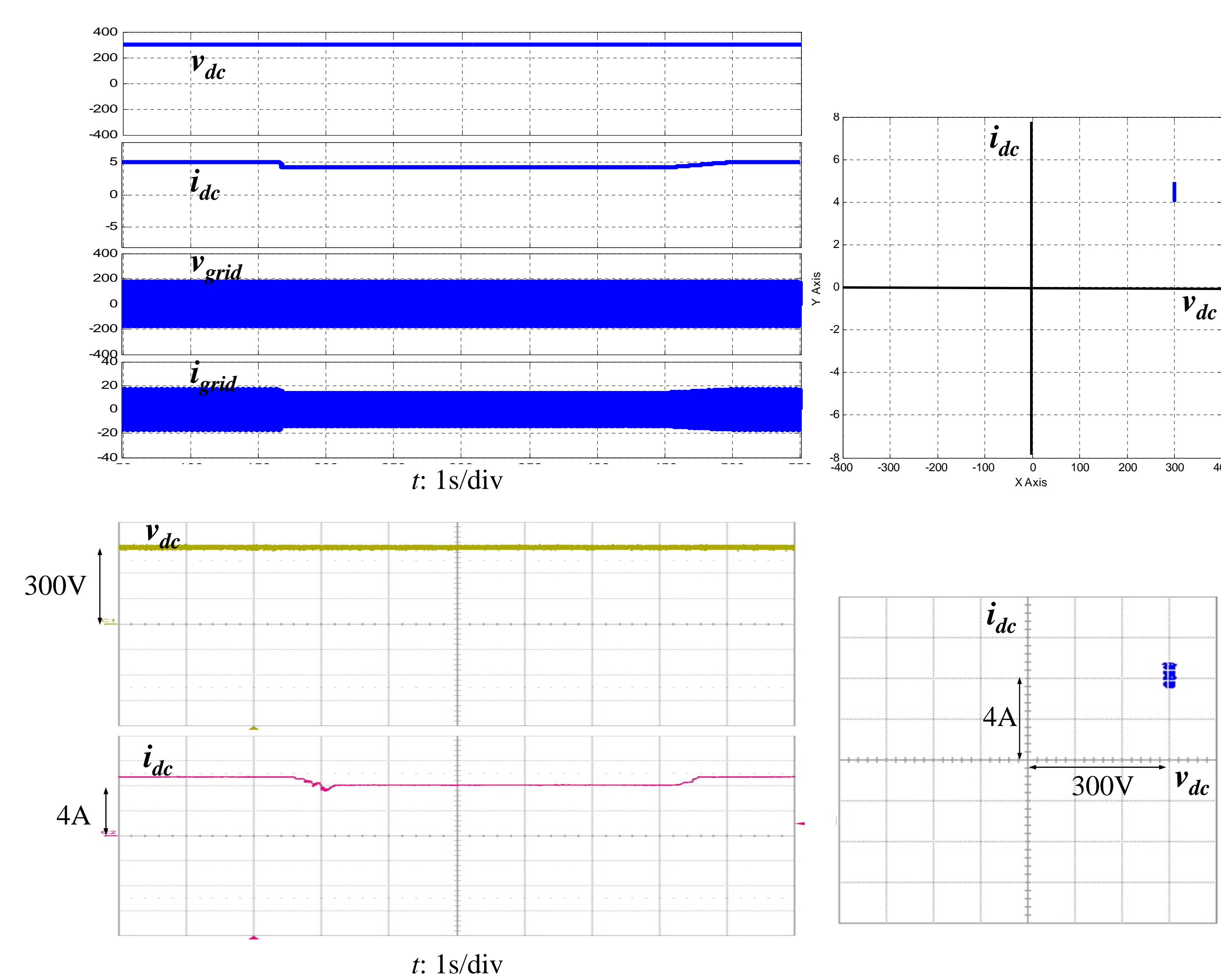
- Configuration: 10x180W+2x165W PV panels with two 180W panels shaded (17% shaded)
- The PV inverter output power drops from 1300W to 60W (95% reduction)

2. System Configuration with SolarMagic™



- SolarMagic™ maximizes individual PV panel power
- SolarMagic™ also decouples the local PV current from the series shared current
- Output power reduction is only due to the shaded panel(s)

Simulation and Test Results of Shading

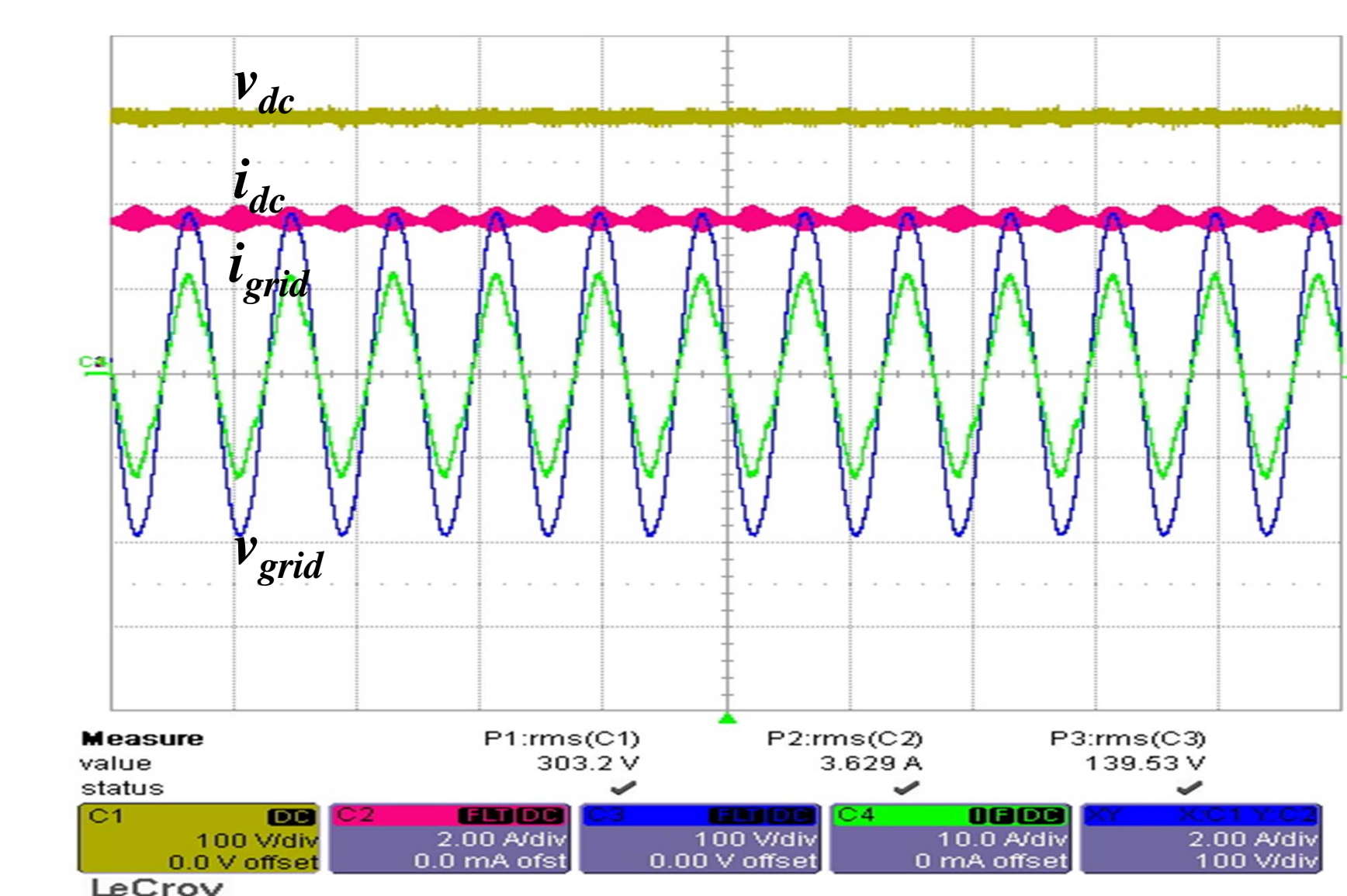


- Same Configuration: 10x180W+2x165W PV panels with two 180W panels shaded (17% shaded)
- With SolarMagic™, the PV inverter output power drops from 1450W to 1200W (17% reduction)

Pictures of Hardware Setup



Steady-State Waveforms



- VT-FEEC PV inverter operates successfully with ordinary PV strings and the output of series strings of SolarMagic™ DC-DC micro-converters
- Future work is to operate with paralleled DC-DC micro-converters