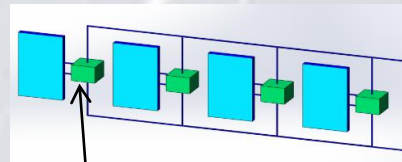


Solar Photovoltaic System Configuration Investigation for Partial Shading

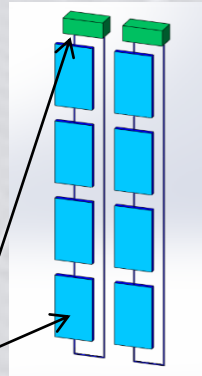
Lynette O'Callaghan BE MSc
Dr. Michael McKeever, Prof. Brian Norton

The thesis investigates the potential for shade loss mitigation by analysing 2 state-of-the-art configurations

- AC Modular Inverter wired in parallel
- Series String Inverter

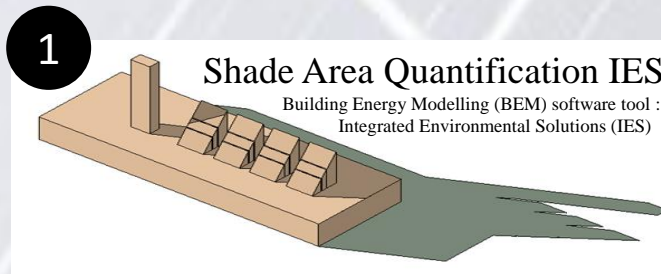


AC Modular/Micro Inverter (Parallel)



String Inverter

PV Module

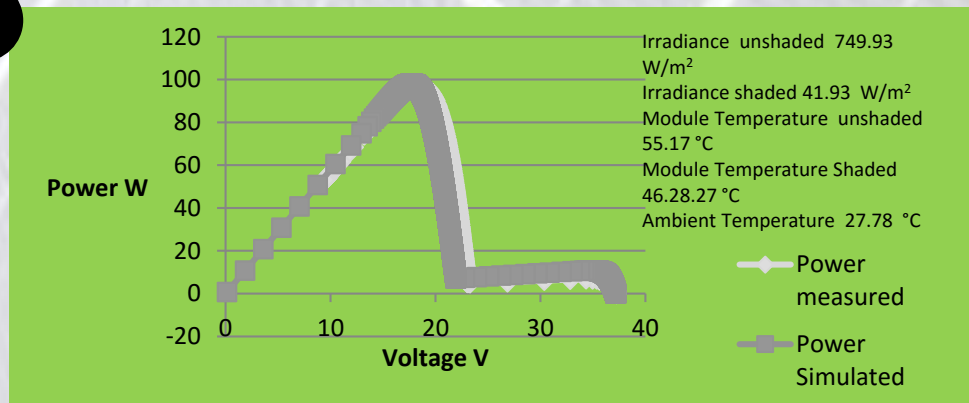


Experimentally Validated PV Performance Model

2

Choosing effective **Inverter Technology** depends on

- How much shade is on the PV array, and for how long?
- Local climate
- Wiring configuration of the array
- Distribution of shade among strings
- Inverter configuration
- Ability to operate at the 'global' maximum power available
- Inverter input voltage window
- Inverter efficiency at low powers



3

Inverter Performance Model development using Monitored **Enecsys** Micro-Inverter & **SMA** Inverters

