INTRODUCTION
- A lack of proper network protection may cause network instabilities as the number of DG units have been increasing.
- Islanding detection is one of the critical issues in this context.
- In this situation, Transient Over Voltages (TOVs) might arise if the DG power exceeds the load.
- Because of the adverse effects of islanding and TOVs, power system sections must detect and mitigate the TOVs, as well as disconnect the DG systems from the grid if necessary.
- This work proposes a communication method based on wireless sensor networks for islanding detection.

PROPOSED METHOD
- Figure shows the diagram of the power system section equipped with the proposed method
  - N is the number of units with the PV panels (or other DG sources)
  - A ZigBee sensor is assigned to each unit (U1 - UN)
  - UL is the ZigBee sensor for the line after the switch and UG is the sensor for the grid side
  - Some loads are added to manage the voltage level in the islanding condition

NETWORK TOPOLOGY
- Islanding detection with the minimum delay is necessary
- Covering the power section system through one-hop ZigBee communication
- Star topology is used for the ZigBee network
- The UG is the coordinator and N + 1 other units are end devices

SYNCHRONIZATION

RESULTS
- This work presents an islanding detection method based on IEEE 802.15.4 standard.
- Islanding can be detected faster using this communication method.
- This algorithm uses a group of sensors in order to overcome the communications and measurements errors.
- After islanding has been detected for mitigating TOVs, some additional loads are added to the power system section.
- Coordinator sends Virtual Signal to DG(s) to synchronize them together.

ACKNOWLEDGEMENT
This work was supported by an award to the Hawaii Natural Energy Institute, University of Hawaii at Manoa, from the Florida Solar Energy Center, University of Central Florida, as part of grant number DTRT13-G-UTC51 from the US Department of Transportation’s University Transportation Centers Program.

CONCLUSION

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