

Optimal and Smart Control of Wind Turbine Generators

Contact:

Dr. Rick Swatloski
Director - OTT
(205) 348-8583
RPSwatloski@ua.edu

Status:

Seeking R&D and/or
licensing partner

Patent Pending

Inventor:

Dr. Shuhui Li
Associate Professor
Electrical & Computer
Engineering

Inventor:

Dr. Haskew Tim
Department Head
Professor
Electrical & Computer
Engineering

Control in Direct-Current d-q Vector Control Configuration

- Permanent magnet synchronous generators (PMSG) offer lower weight, maintenance, and complexity.
- New system and method for control of PMSG wind turbine that utilized direct-current based d-q vector control.
- Utilizes non-linear programming to improve performance of system
- System includes intelligent control strategy to maximize wind power

Advantages

- Simulation of technology versus conventional approaches revealed reduced oscillations and better switching performance
- Additionally, higher stability and reliability along with better performance under varying wind conditions than other approaches.
- Intelligent maximum wind power extraction control strategy overcomes conventional approaches

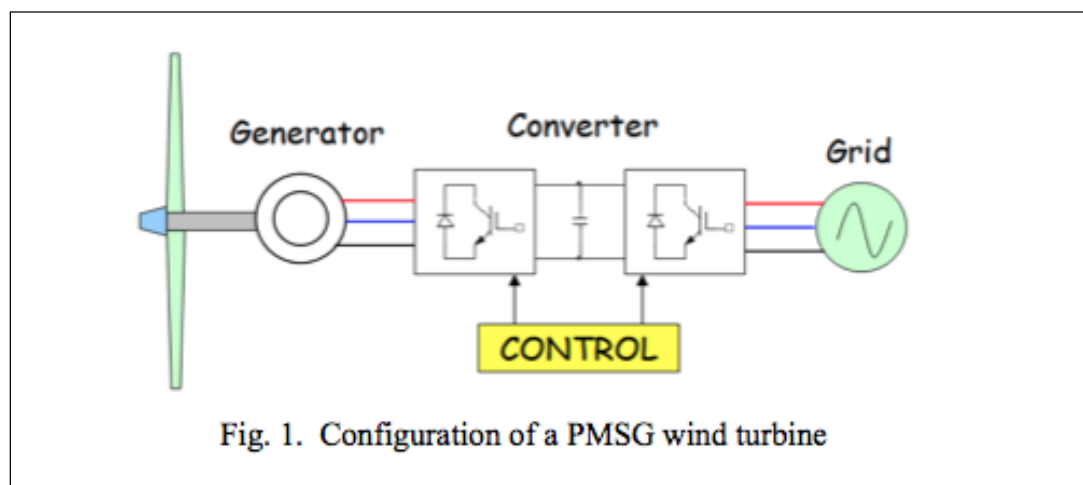


Fig. 1. Configuration of a PMSG wind turbine

[For More Information, Click to View YouTube Video](#)

