Closed-loop control of wind power generation system

Abstract: Following a frequency event in a power system, synthetic inertia control (SIC) of a wind turbine generator (WTG) can improve the frequency nadir by instantly releasing the stored kinetic energy in ...

We develop a methodology for combined power and loads optimization by coupling a surrogate loads model with an analytical quasi-static Gaussian wake merging model.

Design of closed loop control for a wind turbine system coupled to a cv transmission system. Paper presented at the North American Wind Energy Academy 2015 Symposium, Blacksburg, VA.

The study also shows the feasibility of closed-loop wind farm flow control in constantly changing, partially observable wind conditions using a combination of model-based and data-driven control methods.

This article reviews the design of algorithms for wind turbine pitch control and also for generator torque control in the case of variable speed turbines. Some recent and possible future developments are ...

Abstract: The paper presents a wind generator output power appropriately monitored using a closed loop controller engaging the buck-boost competency of Trans qZSI and is fed to grid.

This contribution examines the control problem for very large wind energy converters during shutdown operation and analyses the most important control approaches.

This paper presents a novel, closed-loop WF controller that continuously estimates the inflow and maximizes the energy yield of the farm through yaw-based wake steering. The controller ...

As such, we developed an optimization-based dispatch function employed in a closed-loop feedback controller. The dispatch function uses model-predictive, multi-objective optimization to determine the ...

Therefore, this paper focuses on developing control strategies for the stator free speed regulating machine, employing a dual closed-loop PI control strategy with an outer loop for speed ...

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