

Title: Doubly-fed generator smart microgrid

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What is a DC hybrid microgrid?

In this paper we will deal with a DC hybrid microgrid combining both Fuel Cell (FC) and Doubly Fed Induction Generator (DFIG) based Wind Turbine (WT) technologies. We aim to control active and reactive powers injected into the grid and to study the system's response to variant fuel inputs.

What is a doubly fed induction generator (DFIG)?

1. Introduction Doubly Fed Induction Generators (DFIGs) are widely used in wind power. In DFIGs, the stator is directly connected to the grid, while the rotor windings are fed at variable frequency through a back-to-back converter.

Can DFIG be used for primary frequency regulation in microgrid?

Abstract: To enhance the frequency support capability of the doubly fed induction generator (DFIG) system in microgrid while improving the control effect, a double-layer model predictive control (MPC)-based grid-forming control of DFIG (GFM-DFIG) is proposed for primary frequency regulation (PFR).

Do doubly-fed induction generators behave as real voltage sources?

Nevertheless, grid-supporting control can still compromise system stability for high penetration of renewables, and grid-forming control has arisen to ensure proper operation. This paper proposes a novel grid-forming control scheme for doubly-fed induction generators, so they behave as real voltage sources.

A review on control techniques of the Wind Power Generation (WPG) using Doubly Fed Induction Generator (DFIG), integrated to the microgrid/utility grid, has been presented, in this paper. ...

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Abstract This chapter handles the investigation of various proposed sensorless schemes of rotor position observer for brushless doubly-fed induction generator (BDFIG) systems based on ...

The flux orientation in turn allows to control the doubly-fed induction generator torque, while the flux magnitude control allows to regulate the generator reactive power or terminal voltage. ...

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This paper presents a novel approach using Deep Deterministic Policy Gradient (DDPG) algorithm for controlling a solar PV-integrated Doubly Fed Induction Generator (DFIG) wind energy ...

Is double fed induction generator suitable for grid-connected wind energy conversion system? This paper presents the control strategies and performance analysis of doubly fed induction generator ...

This research article introduces advanced control strategies for grid-connected hybrid renewable energy systems, focusing on a doubly fed induction machine (DFIM) based wind power ...

To enhance the frequency support capability of the doubly fed induction generator (DFIG) system in microgrid while improving the control effect, a double-layer model predictive control (MPC) ...

For increased performance efficiency in wind power technology, Doubly Fed Induction Generator (DFIG) is widely adopted. Since it has a variable speed characteristic. This means it can ...

A novel and robust active disturbance rejection control (ADRC) strategy for variable speed wind turbine systems using a doubly fed induction generator (DFIG) is presented in this paper.

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